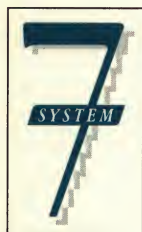




Macintosh[™]
Networking Reference



Networking

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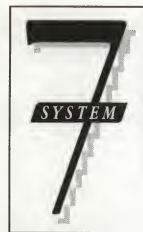
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MacintoshTM Networking Reference



Networking

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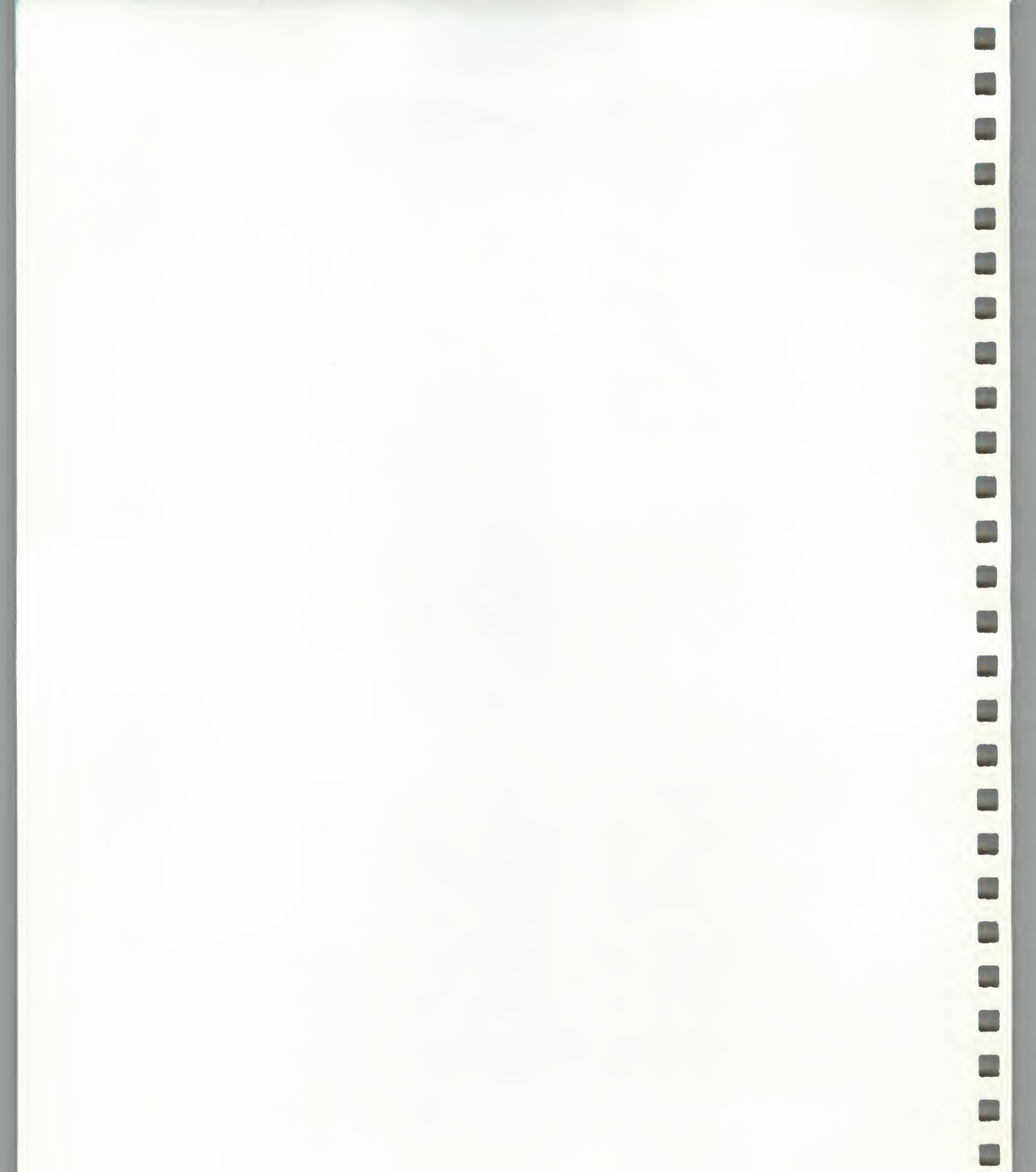
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About This Book

The *Macintosh Networking Reference* is a resource for learning how to use the networking capabilities of your Macintosh™ computer. Your Macintosh comes with many networking features already built-in, so you can begin to use these features almost immediately. This book shows you how to set up your computer on a network, helps you understand what you can do when connected to a network, and gives you step-by-step instructions on how to use the networking features of your Macintosh.

What you should know before you use this book

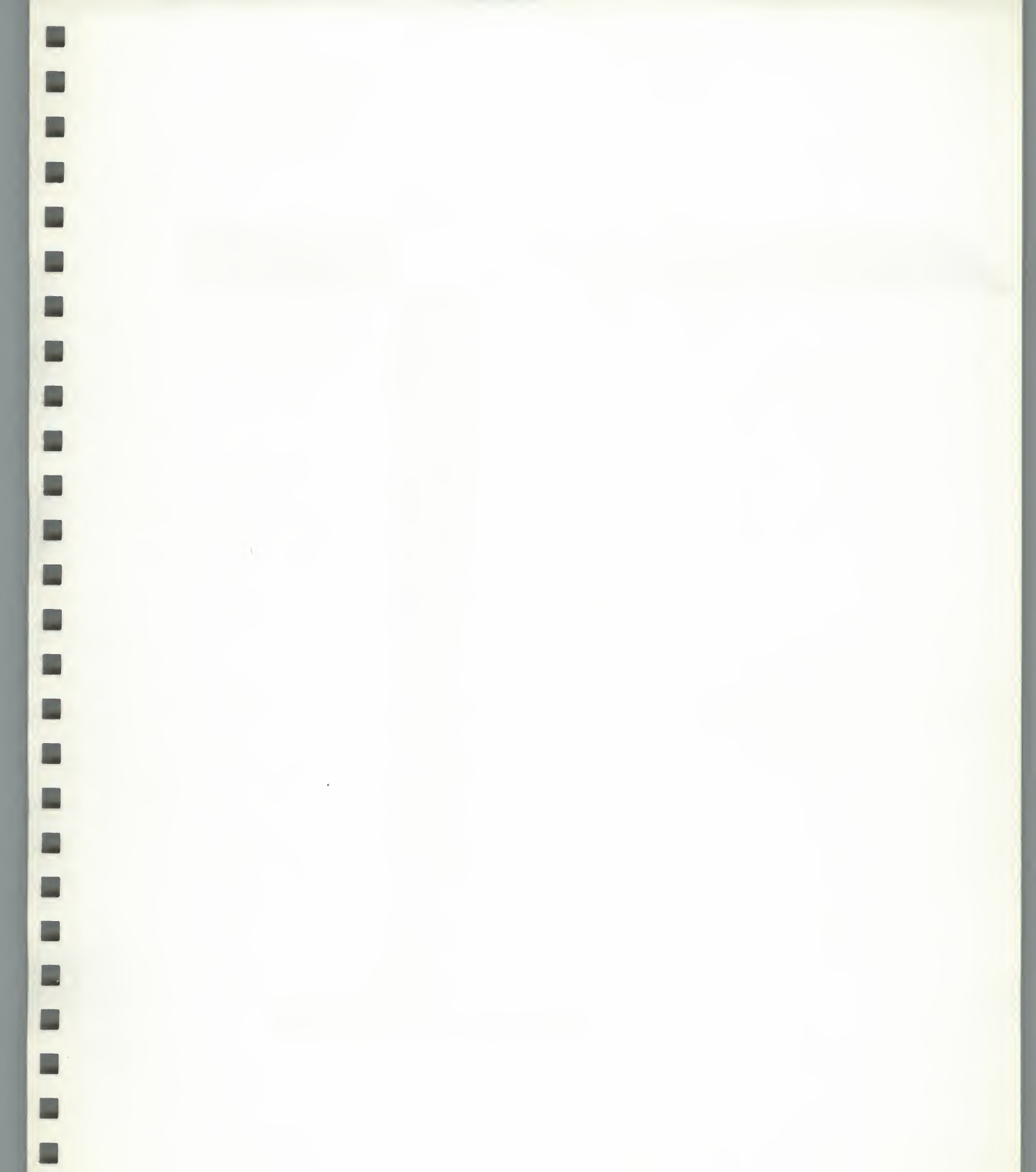
If you are familiar with your Macintosh and have learned basic Macintosh skills, such as clicking, dragging, choosing from menus, and responding to dialog boxes, then you are ready to begin using your Macintosh on the network. The networking features of your computer are fully integrated into the Finder™ and require no other special skills. If you are not acquainted with basic Macintosh skills, refer to the information in the *Learning Macintosh* guide, the *Macintosh Basics* training disk, and the *Macintosh Reference* book.

For an introduction to the capabilities of your Macintosh on a network, use the *Macintosh Networking Basics* training disk.

Further reading materials

To find out more about computer networks, the following books are available from Apple Computer:

- *Understanding Computer Networks* provides an introductory discussion of networks, including what a network is, network hardware and software, protocols, and network services. Published by Addison-Wesley Publishing Company, available at your local bookstore.
- *LocalTalk Cable System Owner's Guide* is included in the LocalTalk™ Locking Connector Kit and describes how to connect a Macintosh computer to a LocalTalk network.
- *AppleTalk Network System Overview* provides an introduction to the technical operation of an AppleTalk™ network. Published by Addison-Wesley Publishing Company, available at your local bookstore.





Introduction to Using Your Macintosh on a Network

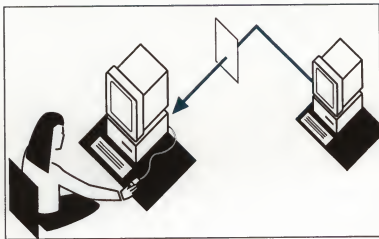
Welcome to using your Macintosh™ on a computer network. Once you connect your Macintosh to a network, you can reach beyond your own desktop to communicate with other people and access and store information on computers in the next office—or in another country—without leaving your desk. And you can rely on what you are already familiar with on your Macintosh—the pointer, icons, and menu bars—to make networking simple and easy.

For an animated introduction to the features and advantages of using your Macintosh on a network, use the *Macintosh Networking Basics* training disk that is included in this package.

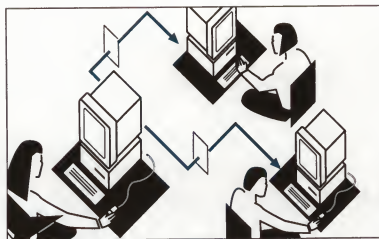
This chapter provides an introduction to some concepts that may be helpful for you to understand and use your network more effectively.

Networking features of your Macintosh

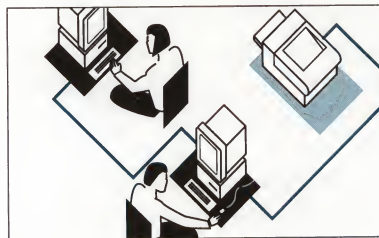
Your Macintosh system software (System 7 and later) provides several networking capabilities. These include:



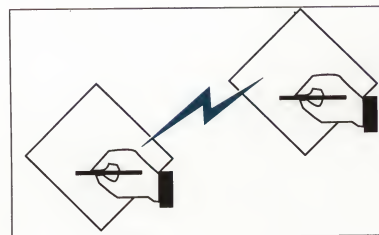
- *Accessing information on other computers.* Working at your own computer, you can connect to another computer and access files you want to use or read. (See Chapter 3.)



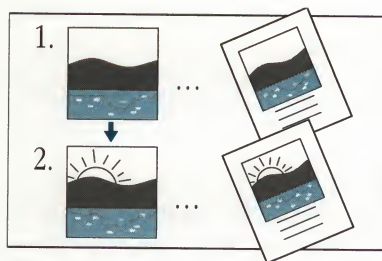
- *Sharing files from your own computer.* You can share parts of your Macintosh, such as folders and disks, so that other people can access them over the network. You can also control who can access the information you've stored and whether they can open, read, or modify the information that you've made available. (See Chapter 4.)



- *Printing documents on network printers.* As soon as you connect to the network, you can print documents on network printers. Network printers are listed in your Chooser, and you use them just as you use printers that are connected directly to your computer. (See Chapter 4, *Macintosh Reference*.)



- *Linking programs to programs on other computers.* You can link programs on your computer to programs on other computers in order to share features between those programs. For example, you could link a word-processing program to a dictionary program to check the meaning and spelling of the words in a document. (See Chapter 6.)



- *Updating files automatically.* Automatic file updating is a new feature of your Macintosh system software. You can use this feature over the network as well. For example, you can put a graphic image in a shared area of your computer. When other people on the network subscribe to this image, their copies of it will be automatically updated whenever the original is changed. (See Chapter 3, *Macintosh Reference*.)

Extending the power of your network

In addition to your system software, special networking software can provide features that are especially helpful for larger networks. The following Apple™ products are available separately:

- *AppleShare™ File Server.* A file server is a computer on the network that is running special software that lets you store and exchange information on any of the hard disks, CD-ROM discs, or other media attached to it. AppleShare File Server software supports hundreds of users and includes organizational and administrative features to manage file access on the network.
- *Print server.* For more efficient printing, AppleShare Print Server software can be installed on a computer on the network. The print server receives files to be printed and stores them when the printer is busy. As a result, users do not have to wait for printing to take place and can get back to their work more quickly. LaserWriter™ printers have some print server capability enabling them to receive documents from several users and print the documents on a first-come, first-served basis.

What types of networks can you connect to?

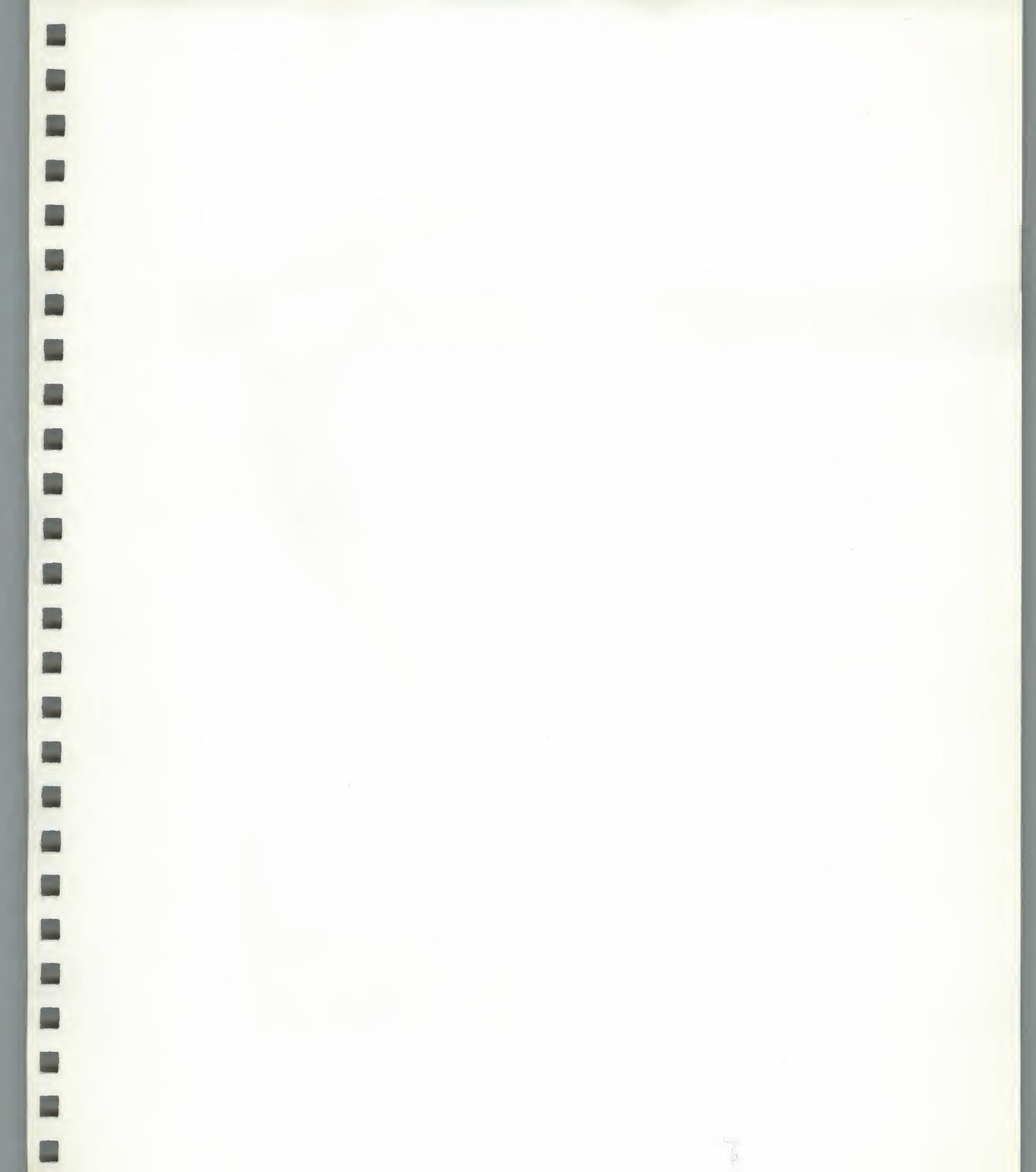
Your Macintosh comes with AppleTalk™ networking software built-in, which allows your computer to operate on an AppleTalk network quickly and easily.

Ready-to-use LocalTalk

LocalTalk™ connection hardware and software are built into your Macintosh, allowing you to connect to an AppleTalk network by simply plugging LocalTalk-compatible cables into the back of your computer. LocalTalk is also built into LaserWriter printers, making them equally simple to connect to a LocalTalk network.

Other types of network connections

If your Macintosh has expansion slots, you can add expansion cards to your computer in order to use two other types of AppleTalk network connections. These two types are EtherTalk™ and TokenTalk™, which enable you to use Ethernet and Token Ring networks, respectively. Talk to your Apple representative or dealer, or consult the books mentioned in the Preface to find out more about these alternatives.



2

Setting Up Your Macintosh on the Network

This chapter describes how to set up your computer so that you can use it on a network. If you have a network administrator, he or she may have already set up your computer so that you can use it on a network. If that is the case, most or all of the tasks included in this chapter may have already been done. Check with your network administrator to see if your computer is already available for use on the network.

Connecting your Macintosh to a network

After you have determined what kind of network you want to connect to and have purchased network cables and any other necessary network hardware, you can connect your Macintosh to a network. This section provides an overview of how to use cables to connect your Macintosh to an AppleTalk network. For a complete description of how to lay cables between computers or install expansion cards, consult the documentation that came with those cables or cards.

Connecting to a LocalTalk network

LocalTalk is built-in and already installed on your Macintosh when you purchase it. To connect to a LocalTalk network, you only need to plug a LocalTalk or LocalTalk-compatible cable into the printer port of the computer (see Figure 2-1).

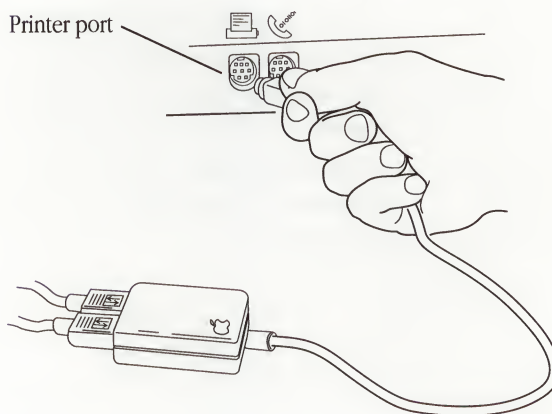


Figure 2-1 Connecting to a LocalTalk network through the printer port

Using an EtherTalk or TokenTalk network connection





If you have an available slot in your computer, you can connect to an AppleTalk network using the EtherTalk (for Ethernet networks) or TokenTalk (for Token Ring networks) connection types. To do so, you must first install an appropriate expansion card in a slot in your computer. To install a card, follow the instructions in the user documentation provided with it.

In addition to the expansion cards, your computer must have the appropriate software (sometimes called *drivers*) installed. EtherTalk and TokenTalk software are provided on your system software installation disks. (EtherTalk and TokenTalk software will be installed automatically only if the expansion cards were in the computer prior to software installation.) The next section, “Checking What Networking Software Is Installed,” describes how to determine if this software is already installed.

Checking what networking software is installed

Networking software comes with your computer. Most of the time, it is installed when system software is installed. However, in some cases, you will need to install additional networking software. Use Table 2-1 to determine if the networking software you want is already installed on your computer.

Table 2-1 Determining if networking software is installed

Feature	Where to look	What you'll see when installed
file access	Chooser	 AppleShare
file sharing	Sharing Setup control panel	 File Sharing
TokenTalk connection	Network control panel	 TokenTalk
EtherTalk connection	Network control panel	 EtherTalk
program linking	(always installed)	

TokenTalk and EtherTalk software are installed automatically only if a TokenTalk or EtherTalk expansion card is already installed in your computer.

Installing networking software

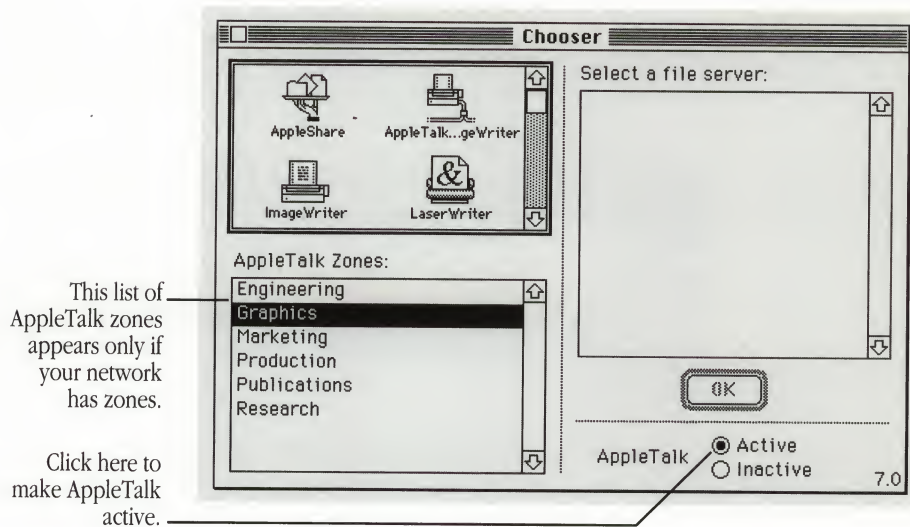
If you find that some networking software you need is not installed, use the Installer program that is on one of your system installation disks and use the Customize option. The Customize option lets you install the specific software you want without disturbing the rest of your system. Installing with the Customize option is described in "Installing System Software" in Chapter 2 of the *Macintosh Reference*.

Turning AppleTalk on or off

As soon as you connect to the network and turn on your computer, AppleTalk—your computer's ability to use the network—is turned on for you. However, you may need to turn AppleTalk off—for example, to connect a serial ImageWriter™ printer to your printer port—or back on again. This section describes how to do this.

1. Select Chooser from the Apple () menu.

The Chooser opens.



2. Click the Active button to turn on AppleTalk. Or click the Inactive button to turn AppleTalk off.

If you attempt to turn off AppleTalk when you are currently connected to a network device, such as a file server, you will get a message that warns you that services will be disconnected. If you have closed all open files and you are through using the device, click OK.

3. Close the Chooser.

If you selected the Active button, AppleTalk is now on. If you leave it this way when you shut down your computer, it will be active automatically the next time you restart.

Selecting a network connection

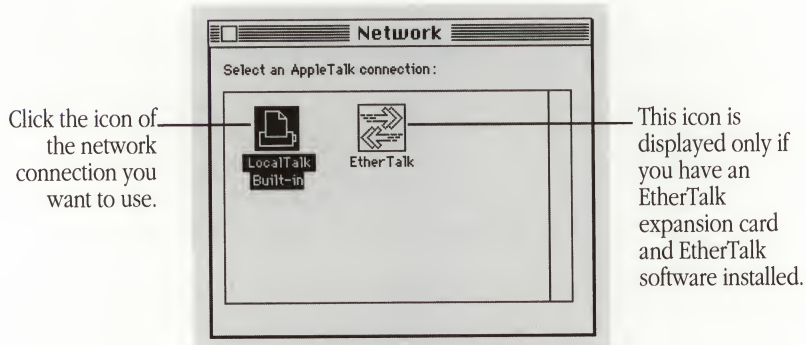
If you have installed EtherTalk or TokenTalk networking hardware and software in your computer, you have to select that connection type in the Network control panel before you can use it.

You can switch to a different network connection at any time. For example, if you are connected to both a LocalTalk and an Ethernet network (using EtherTalk), you can switch between the two connection types.



1. Choose Control Panels from the Apple menu and open the Network control panel.

When the Network control panel opens, an icon for LocalTalk, labeled LocalTalk Built-in, and icons for any other network connection software that you have installed are displayed.



2. Click the icon of the network connection you want to use.

A dialog box warns you that you may lose any network services that you are using with your current network connection. This means that you must reconnect to the network services on the new network.

3. Click OK.

The network connection that you selected is now in use.

4. Close the Network control panel.

Putting your Macintosh into a zone

If you are on a LocalTalk network, skip this section. If you are using a TokenTalk or EtherTalk network connection, you can choose from among several *zones* that your network administrator has assigned to the network. Before you proceed with this section, make sure that he or she has not already done this for you.

Just like naming the town you live in so that someone else can send you a letter, you can name a zone that you want your Macintosh to reside in so that people can find it on the network. Zones are set up by a network administrator and are used to group network devices into manageable subsets.

- ❖ *Suggestions for selecting a zone:* If you intend to share files over the network or link programs, you should choose a zone for your computer so that other people on the network can find it easily among the other zones on the network. For example, it might be most practical to put your Macintosh in the same zone as the computers of the people who will be using it the most. This way, they will not have to select a different zone in their Chooser in order to find your computer. ❖

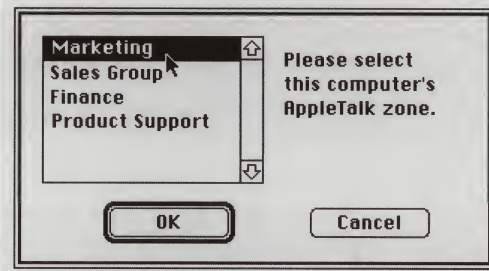


Network

1. Choose Control Panels from the Apple menu and open the Network control panel.

2. Click the icon for the network connection you want to use.

After the icon is selected and you click it again, a dialog box with a list of one or more zone names is displayed. The default zone for your computer is set up by your network administrator and is now selected.



3. To select a different zone, click a zone name from the list.

If you are currently using any network services such as file servers, a dialog box will warn you that your active services will be disconnected.

4. Click OK.
5. Close the Network control panel.

Your computer can now be seen in the zone that you selected.

Naming your Macintosh and its owner

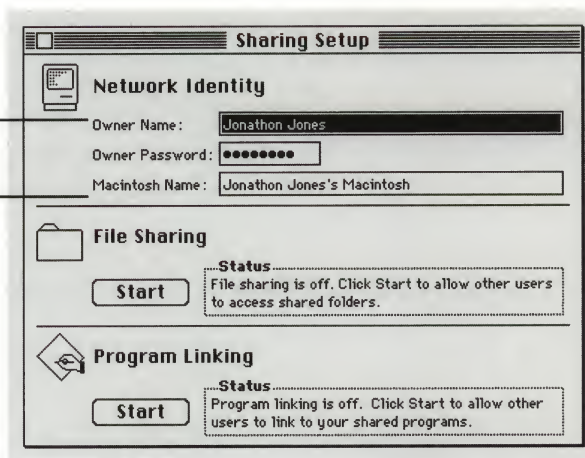
Before you begin to use the network, you must give your Macintosh a name. Once you assign a name, it will appear in the Chooser of other computers on the network. This makes it easy for other people to find your computer on the network in order to access your shared folders or to link programs with your computer. In addition, if you are going to use file sharing to share folders, you need to name yourself as the owner of your computer. You only need to enter this information once.



Sharing Setup

1. Choose Control Panels from the Apple menu and open the Sharing Setup control panel.

Type your name,
password, and a
name for your
Macintosh.



2. Type a name in the Owner Name text box and press Tab.

Type the name of the primary user of this computer—very likely, this is you. The owner name serves two purposes. First, when you're on your own computer and you connect to another computer, this name will automatically appear as your user name for that computer. (This works in similar fashion to the user name in the Chooser of earlier versions of Macintosh system software.) Second, when you're on another computer on the network you can use this name to connect to your own computer and access any file on it.

3. Type your password in the Owner Password text box and press Tab.

After you type your password and press Tab or Return, it is replaced by bullets (•) to help keep your password private.

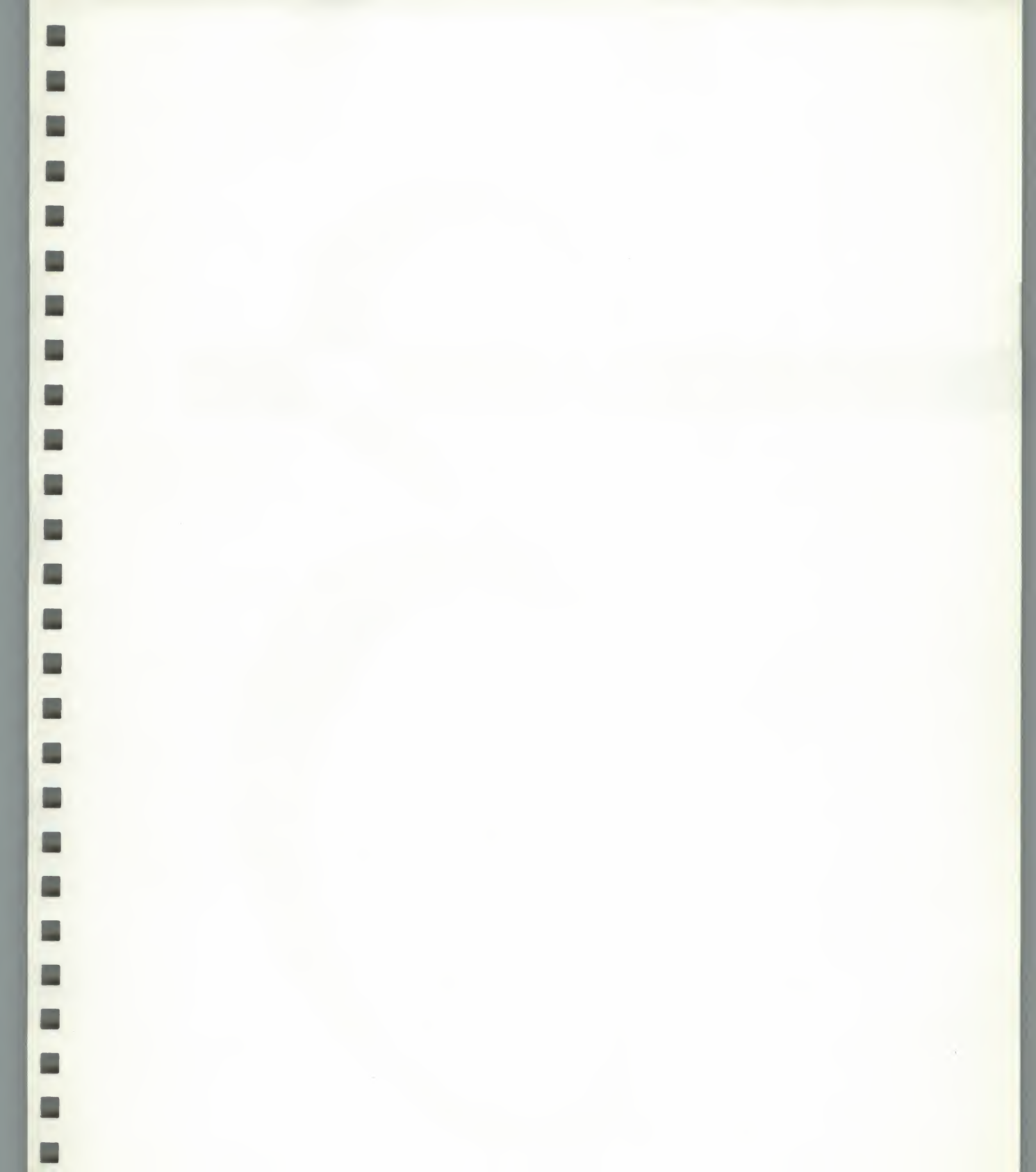
Your password can be up to eight characters in length. Your password prevents others from gaining access to your files without your permission. When you enter your password to connect to your computer, you will have to match the use of uppercase and lowercase letters that you enter here. For more information about password security, see Appendix A.

4. **Type a name for your Macintosh in the Macintosh Name text box.**

If a name already appears in the Macintosh Name text box, you can use that name or type in a new one. When people on your network want to access your computer, they will select this name in their Chooser.

5. **Close the Sharing Setup control panel.**

Your computer is now ready to be used on a network.





Accessing and Storing Information on Other Computers

When you connect computers together on a network, you can take advantage of the extra storage space that multiple computers provide. For example, you're no longer confined to the amount of space on your own hard disk, but you can store and retrieve information on *shared disks*—hard disks or CD-ROM discs that contain files and folders that can be retrieved over the network.

This chapter describes how to connect to and access shared disks on the network.

About file servers and file sharing

Your Macintosh can access and store information on shared disks that are on two types of computers:

- AppleShare and AppleShare-compatible file servers
- other Macintosh computers using System 7 that have shared disks

File servers are computers that have special software on them that allows hundreds of users to access and store information on the hard disks, CD-ROM discs, or other media attached to them.

The steps you take to connect to a shared disk—whether it's on a file server or another Macintosh computer—are exactly the same. However, when you use shared disks, be aware that file servers are usually turned on and available at all times, whereas personal computers may be turned off at the end of the day or at other times, as determined by their owners.

What to do before you begin

Before you attempt to retrieve or store information on the network, do the following:

- **Obtain the name of the file server or the name of the Macintosh that has the shared disk you want to access.**

Ask your network administrator for the name of the file server, or the Macintosh owner for the name of the Macintosh.

- **If your network has zones, find out the name of the zone that file server or Macintosh is in.**
- **Find out if you are registered on that file server or Macintosh or if it allows guest access.**

The network administrator or Macintosh owner can name specific users on the file server or Macintosh, thereby enabling users like yourself to access it. Alternatively, administrators and Macintosh owners can allow *guest* access, which enables any network user to access the computer. You can access files from another computer on the network only if you are a registered user or if guest access is allowed.

- If you are a registered user, find out your user name and password to that server or Macintosh.

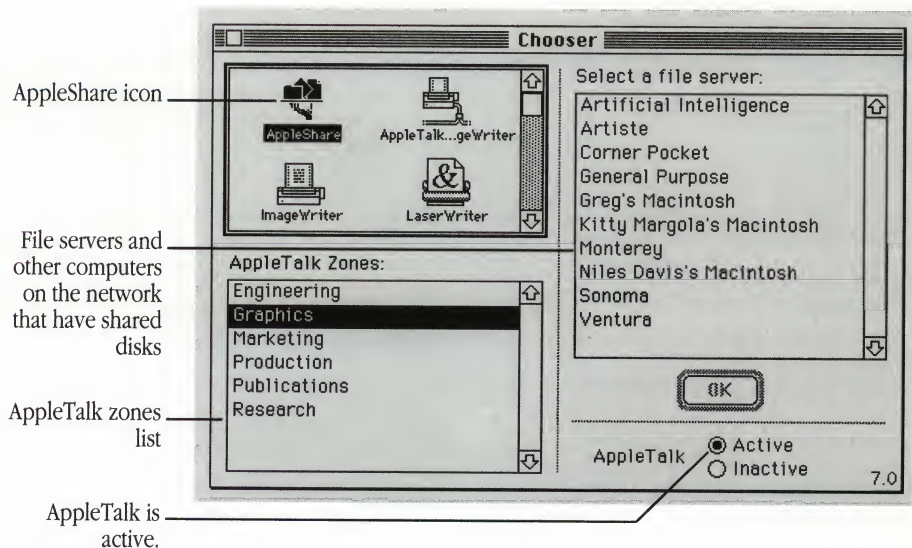
If you are registered, you will need to type your name and password to verify that you are entitled to have access. Find out exactly how both are spelled and make a note of the use of uppercase and lowercase letters in your password.

Connecting to a shared disk

Follow these steps to connect to a shared disk:

1. Select **Chooser** from the **Apple** menu.

The Chooser opens.



2. Make sure that AppleTalk is active.

The AppleTalk Active button must be selected in order to connect to a shared disk.

3. Click the AppleShare icon in the upper-left section of the Chooser window.

4. If your network has zones, click the zone in which the computer with the shared disk you want resides.

If you do not see a box in your Chooser labeled AppleTalk Zones, skip this step.

You may have to scroll to locate the zone you want. When you select a zone, the available computers in that zone are listed in the upper-right portion of the window.

❖ *Shortcut to select items quickly:* A quick way to find a zone name in the AppleTalk Zones list is to make that section of the Chooser active by clicking inside it or by tabbing to it. Then, type the first letter or the first few letters of the name of the zone you want to select. The list will automatically scroll to and select the zone name starting with those letters. This shortcut can be used in all three panels in the Chooser. ❖

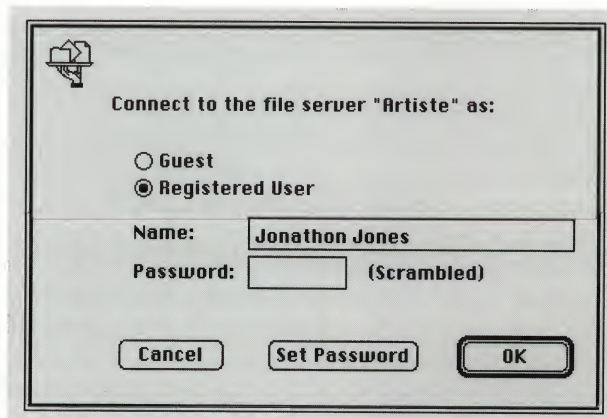
Zones are set up by a network administrator and are used to distribute the devices on the network among groups for easier access. For example, although your entire network may contain a large number of file servers or Macintosh computers, you can quickly find one by knowing what zone it's in.

5. Click the name of the computer with the shared disk that you want to use.

You may have to scroll to find the one you want. If the name you want isn't listed, make sure that you have selected the correct zone, or ask your network administrator or the Macintosh owner if the computer is on and you have the correct name.

6. Click OK.

A dialog box appears for you to identify yourself as a registered user or guest.



7. Click Guest or Registered User.

If you are a guest or if you are not certain that you are registered, click Guest and skip to step 10. If you are a registered user, click Registered User and continue to step 8.

If the Guest option is dimmed, this indicates that guests are not permitted access to this computer.

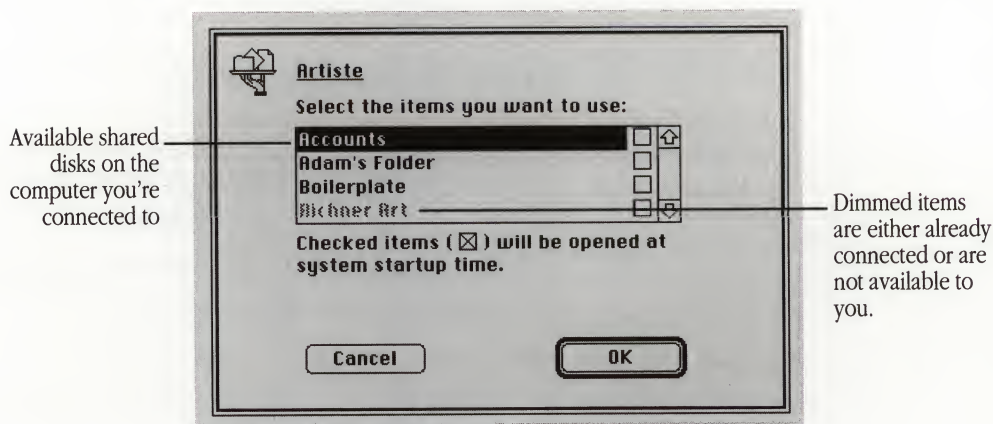
8. If you are a registered user, make sure that the displayed name is the exact name that is registered. If it is not, correct it.

Type your registered user name with the exact spelling as it is registered. Uppercase and lowercase letters do not have to match. If a name is already entered, it is taken from the Owner Name in the Sharing Setup control panel on your computer. If that is not your registered name then type your registered name now. (Or, if you use this registered name frequently, you may want to change your owner name. See the section “Naming Your Macintosh and Its Owner” in Chapter 2.)

❖ *Security methods in use:* For your information, the type of security measure that is being used to connect your computer to the shared disks is displayed next to your password. The possible methods are Clear Text, Scrambled, and Two-Way Scrambled. The method used is determined for you. ❖

9. Type your password and click OK.

Type your password exactly as it is registered, including uppercase and lowercase letters. After you click OK, a dialog box appears in which you select the shared disks that you want to use.



10. Select the name of the shared disks you want to use.

You may have to scroll to find the name you want. You can also type the first few letters of the name of a shared disk to find it. To select more than one, hold down the Shift key or the ⌘ key and click the name of each shared disk that you want.

A dimmed name indicates either that you are already connected to that shared disk, or that you do not have access privileges to it.

11. Click OK.

If the OK button is dimmed, you have not selected a shared disk. Go back and select one.



When you click OK, the dialog box closes and a shared disk icon appears on your desktop in the area where hard disk and floppy disk icons appear. (If you are connecting to a type of device other than AppleShare, the icon will be different from the one shown here.)

12. Close the Chooser.

Connecting automatically

There are two methods by which you can connect to another computer automatically. Both methods are especially convenient if you use certain shared disks frequently. These are described below.

Using aliases to connect quickly

You can connect to a shared disk almost instantly by using aliases. Follow these steps to do so:

1. Connect to a shared disk.

Follow the steps in the previous section to connect to a shared disk.

2. Select the shared disk that you'll want to connect to later.

3. Choose Make Alias from the File menu.

An alias icon appears that has the name of the shared disk with the word “alias” appended to it.

4. If desired, rename the alias.

5. Drag the new alias to a convenient place on your desktop or disk.

6. When you’re done using the shared disk, disconnect from it by dragging its icon to the Trash.

7. The next time you want to use the shared disk, double-click the alias you created in step 3.

8. If you originally connected to the shared disk as a registered user, a password dialog box appears. Type your password.

If you originally connected as a guest, the dialog box will not appear, so skip this step.

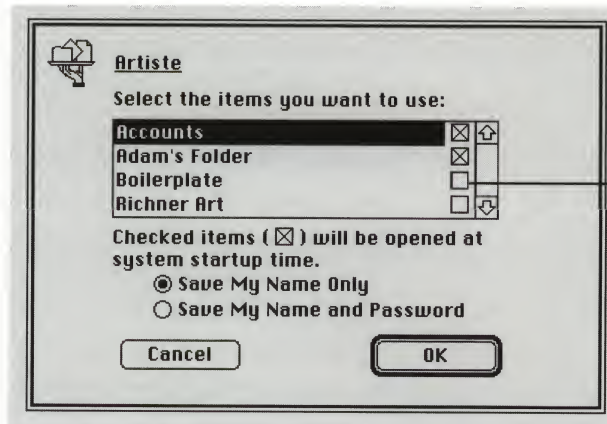
The shared disk icon appears on your screen.

➤ *See also:* • “Using Aliases for Easy Access to a File” in Chapter 5 of the *Macintosh Reference*

Connecting automatically when you start up

You can set up your computer to connect automatically to shared disks whenever you turn it on. Follow these steps to do so:

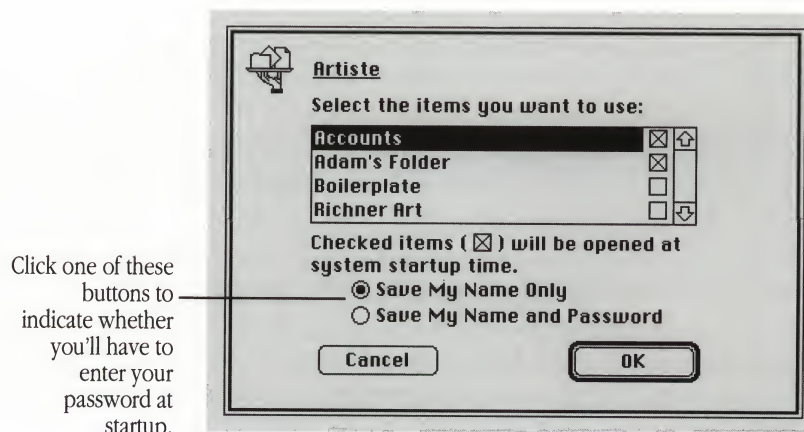
1. Connect to a computer as described in steps 1 through 9 of “Connecting to a Shared Disk.”



Check these boxes to connect automatically when you turn on your computer.

2. Click the checkbox next to the name of a shared disk that you want to connect to automatically when you start your computer.

If you are a registered user, two buttons appear when a checkbox of a shared disk is checked.



Click one of these buttons to indicate whether you'll have to enter your password at startup.

3. If you're connecting as a registered user, click one of the buttons to indicate whether you want to save your name and password or just your name.

If you are connecting as a guest, skip this step.

If you select Save My Name Only, then when you turn on your computer, you'll have to enter your password in order to connect to and access the shared disk. This option is recommended to prevent unauthorized people from accessing the shared disk from your computer. If you select Save My Name and Password, your Macintosh will automatically connect to the server without any input from you. This is a less secure method than the Save My Name Only option because anyone walking by your computer could connect to the shared disk without even knowing your registered name or password.

4. Click OK.
5. Close the Chooser.

Using and storing files on a shared disk

Once you've connected to a shared disk, you can use the files stored on it in a similar manner to how you use stored files on your own computer. You can create new documents on a shared disk but in some cases your ability to do so may be limited. This is because the owner of a shared disk can control access to it and can prevent anyone else from changing its contents in any way. For information about access privileges, see Chapter 5.

You can also use programs stored on the shared disk. Be aware, however, that programs generally run faster when they are stored on your own computer.



Whenever you send or receive information across the network using AppleShare, the double-arrow icon, shown at left, flashes in the upper-left corner of the menu bar.

Disconnecting from a shared disk

When you're finished using a shared disk, you can disconnect from it in three different ways. First close any open files or programs and then use any one of the following methods:

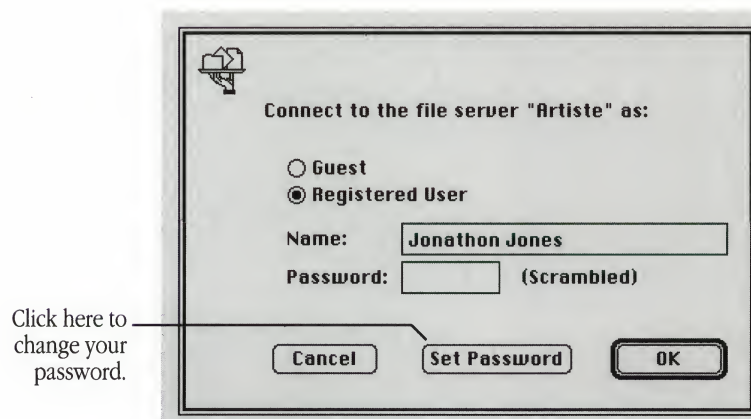
- Select the icon of the shared disk you want to disconnect from and choose Put Away from the File menu, or,
- Drag the icon to the Trash, or,
- If you are done working for the day, choose Shut Down from the Special menu as usual. You will be disconnected automatically when you shut down.

Changing your password

If you are a registered user, you may be able to change the password you use to access a shared disk. The file server administrator may have restricted this capability. In that case, a warning box will inform you that you cannot change your password to that computer.

1. Follow steps 1 through 6 of "Connecting to a Shared Disk."

The following dialog box is displayed and the Registered User button is already selected.



2. Click the Set Password button.

A password dialog box appears.



3. Type in your current password.

Bullets appear for every letter you type to protect your privacy.

4. Press Tab and type in a new password.

For best security, type a password that will not be easily guessed by someone else.

5. Click OK.

A small dialog box informs you that you'll need to retype your new password to verify its accuracy. Click OK.

6. Retype your password.

7. Click OK.

Your new password is now in effect.

Affecting access to folders



Tabbed folder

When you create a folder on another computer, you become its *owner*. Folders that you own appear with a tabbed folder icon.

Ownership allows you to set access privileges to that folder in order to determine who can access it and in what way. See Chapter 5 for information about setting access privileges.

Giving folder ownership to someone else

Another way to affect access to a folder is to give its ownership to someone else. However, once you do so, the new owner can decide to restrict your access to that folder and the folders within it at any time. Make sure that you have moved anything you may need to a folder that you own before you give ownership to someone else.

1. **After connecting to a shared disk, select a folder on it that you own.**
2. **Choose Sharing from the File menu.**
3. **Type the name of a registered user or registered group in the Owner text box.**

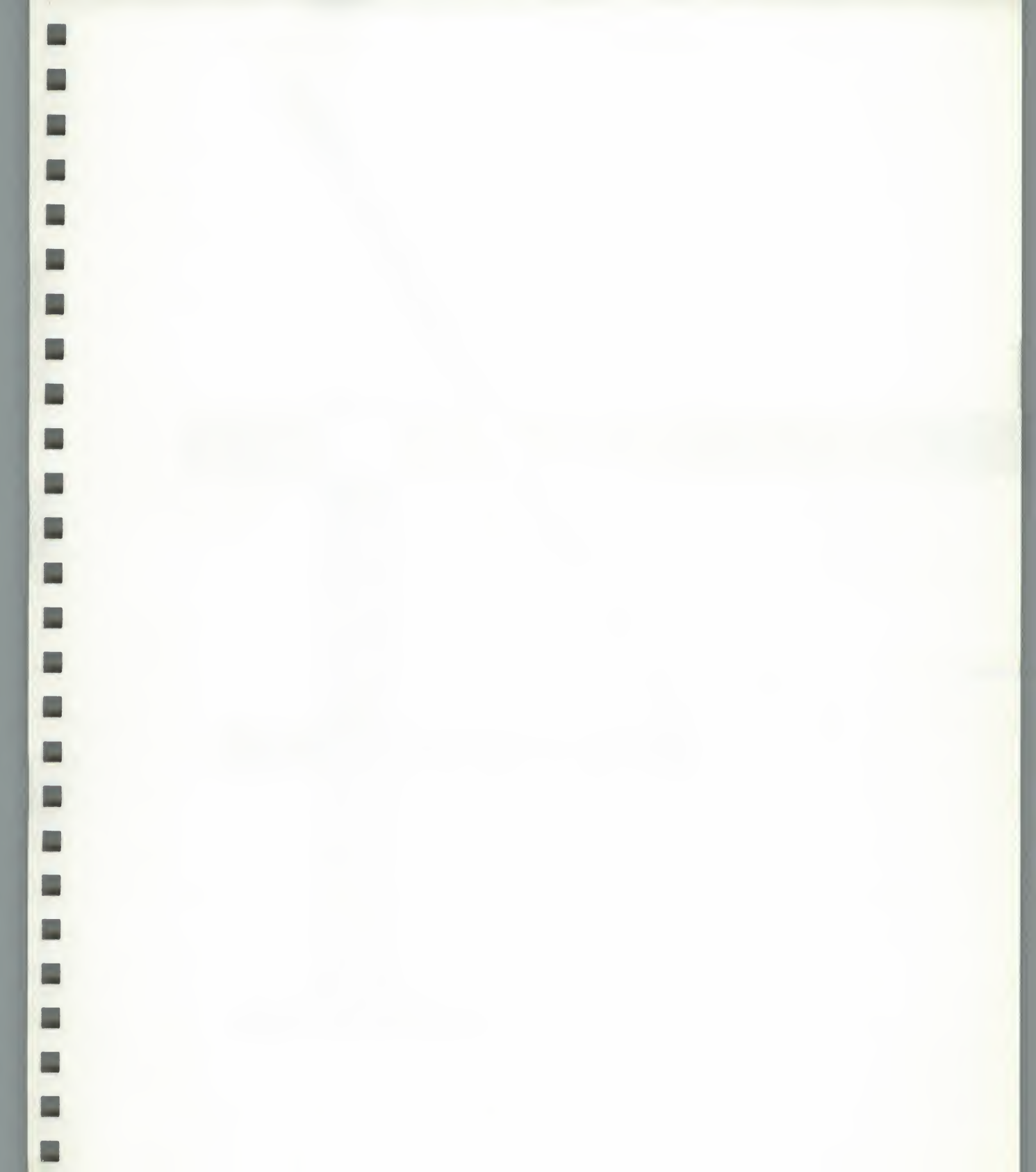
Type the name exactly as your network administrator or the Macintosh owner registered it.
4. **Close the dialog box. Then click OK to save the changes to the access privileges.**

A dialog box asks you to confirm that you want to change the owner of this disk. Click OK. The user or group that you named assumes ownership immediately.

Accessing your own computer remotely

You can connect to your own Macintosh running System 7 from another computer on the network and access everything on all of the hard disks or CD-ROM discs attached to your computer. As the owner of your computer, only you have this privilege. This can be useful, for example, if you've forgotten an important file or if you need to refer to some information that you have on your computer, but you're no longer in your own office.

1. To be able to access everything on your computer, set up your computer as described in the section "Setting Up Your Computer to Access It Remotely" in Chapter 4.
2. Connect to your computer as a registered user in the normal manner. Enter the owner name and password as they are named in the Sharing Setup control panel on your computer.
3. Continue the connection process as you normally would.



4

Sharing Information Over the Network

If you've ever accessed information from another computer, you may have noticed how convenient it is to do so. Instead of storing paper documents in file cabinets for people in a group, a department, or even an entire company, a network administrator can store those documents on a computer on the network and anyone who wants to can get his or her own copy almost immediately.

You can now provide a similar service using your own Macintosh computer. Instead of copying a document for a coworker, for example, you can put it into a shared folder on your computer so that he or she can retrieve it over the network. Or, if you have several files that you'd like to make available to people, you can simply place them in a shared folder on your computer and allow network users to access that folder when they want to.

This chapter describes how to share folders or disks so that people can access them over the network. It also describes how you can control exactly who can access the shared areas on your computer as well as what they can do with the information stored there.

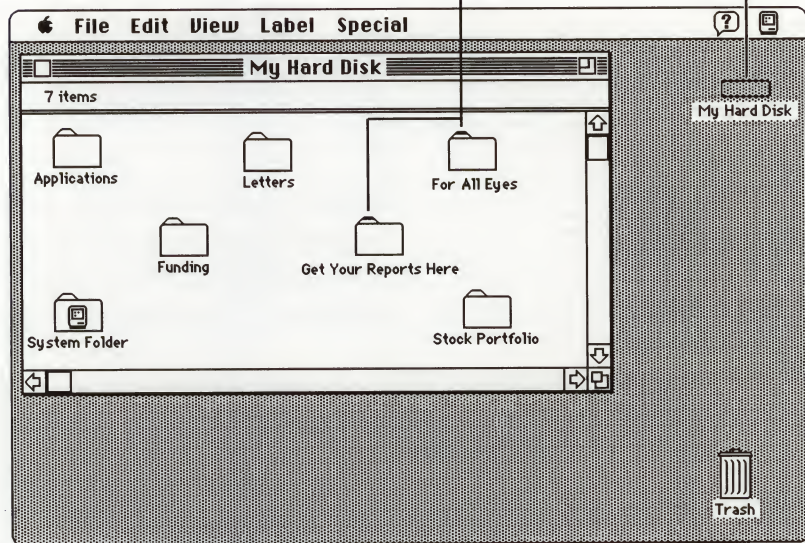
About file sharing

This section provides an overview of how you can use file sharing on your Macintosh. Subsequent sections in this chapter explain the specific steps you need to take to start and use file sharing.

In order to share files on your computer with other people over the network, you can set aside an area of your computer, such as a folder or an entire hard disk, as a public space:

You can share a single folder or several folders...

...or, an entire hard disk.



After you share a folder or disk, the files and folders inside of it can be accessed by people on the network.

What you should know before you begin

You can share information on your computer in ways that are comfortable for you:

- You can share as much—or as little—as you like. In fact, you don't have to share anything at all.
- You can share folders or disks with everyone on the network, or you can share items with only one person or a group of people.
- For even more control, you can specify whether people on the network can change or even see the files and folders you place in your shared folders and disks.
- You can also set up your Macintosh so that in the future you can access the entire contents of your disks from another computer on the network.

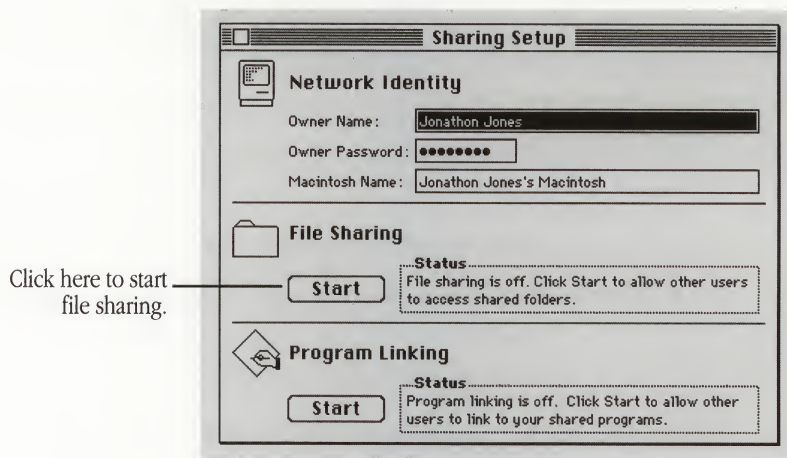
Starting file sharing

Before you can share folders or disks, the file-sharing capability of your Macintosh must be turned on. Once on, it stays on until you turn it off. This means that even when you shut down your computer, the next time you turn it on, file sharing will still be active.

1. **Make sure that you have named your Macintosh on the network as described in Chapter 2.**
2. **Choose Control Panels from the Apple menu and open the Sharing Setup control panel.**



The Sharing Setup control panel opens.



3. Click the Start button in the File Sharing section in the middle of the window.

After you click the Start button, its label changes to Cancel and the status line describes what is happening while the file-sharing capability is starting up. It may take a second or two to complete. When the button is labeled Stop and the status line says "File sharing is on," your computer is ready to share files.

4. Close the Sharing Setup control panel and the Control Panels folder.

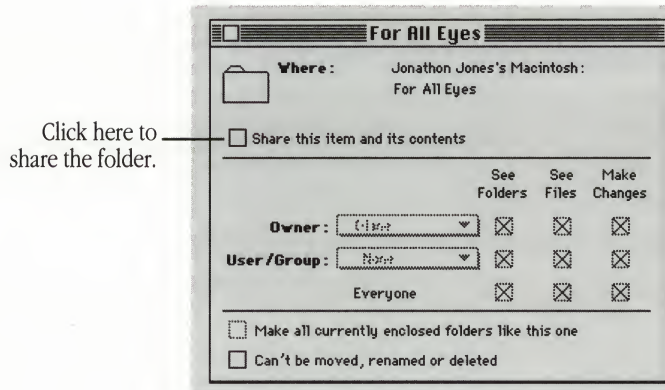
Sharing a folder or disk

To share information on your computer, you can share any folder or disk—including hard disks and CD-ROM discs—on your computer. You cannot share anything on floppy disks, however. You can share up to ten folders or disks at one time. (This number does not include the folders that are within the folders or disks that you share.) To share a folder or disk, do the following:

1. Make sure file sharing is turned on.
2. Select a folder, hard disk, or CD-ROM disc to share.

3. Choose Sharing from the File menu.

A window appears.

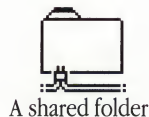


4. Click the box labeled “Share this item and its contents.”

This checkbox is used to share the folder or disk. When it is checked, and after you close the window, anyone on the network can access it and its contents over the network.

To find out more about the *access privileges* checkboxes—the ones in the columns labeled See Folders, See Files, and Make Changes—see Chapter 5.

5. Close the window. Then click Save in the dialog box that appears to save your changes.



If you shared a folder and you are using By Icon view or By Small Icon view, the folder icon appears with network cables, as shown at left, to indicate that it is shared.

If you are using other views, the shared folder icons look the same as other folder icons.

6. Drag any files and folders that you want to make available to the network into your new shared folder or disk.

The files and folders that you place in the shared folder or disk will be available to the user who connects to your computer. When a user does connect, a shared icon will appear on the user's desktop that can be opened just like the folders on a local disk.



When people on your network are connected to the folder or disk, the icon appears with faces in the center to indicate that it is in use, as shown at left.

- △ **Important:** Before you put programs into shared folders, remember that copyright laws apply to sharing programs over a network as well as to copying programs from a floppy disk. Check with any applicable licensing agreements and follow their specifications. △

Naming specific people to share folders and disks with

If you've shared a folder or disk as described in the previous section, you shared it with everyone on your network. You can also share a folder or disk only with specific people that you've named on your computer. This section describes how to name those people. The next section describes how to share a folder or disk with those people.

Naming a user

Once you name a user, that user is considered a *registered user*. You can name as many as 100 users and groups of users combined, but for optimal performance, it is recommended that you name no more than 50.

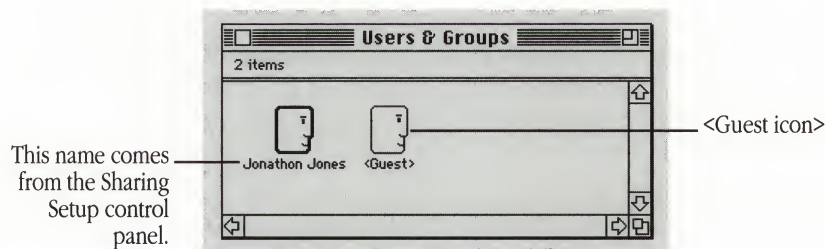
- ❖ *Shortcut:* If you think that you will be adding users frequently, you can put the Users & Groups control panel—or an alias of it—into the Apple Menu Items folder in the System Folder to give you quick access to Users & Groups. ❖



Users & Groups

1. Choose Control Panels from the Apple menu and open the Users & Groups control panel.

The Users & Groups control panel is used to name the specific people you'll allow to access your computer for both file sharing and program linking. When you open it for the first time, it displays two icons. The first icon has a bold outline and represents you, the owner of your Macintosh. (If you don't see the bold icon, follow the steps in "Naming Your Macintosh and Its Owner" in Chapter 2.)



The second icon in the window is the <Guest> icon. You use this icon to let anyone on the network access your computer or to prevent them from doing so. Guest access is automatically allowed when file sharing is first started.

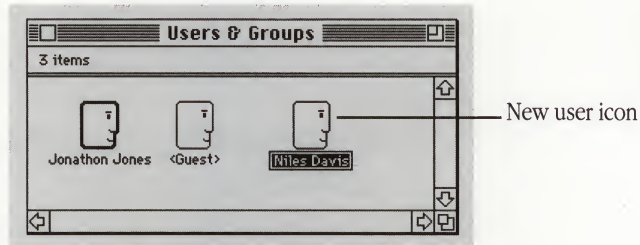
2. Choose New User from the File menu.

The New User command in the File menu is present only when the Users & Groups control panel is open and is the active window. After you choose the command, an icon labeled New User is created.

❖ *Shortcut:* You can also use **⌘-N** to create a new user. ❖

3. **Replace the name New User with the name of a user for your computer.**

Type a name for the user. Later, make sure that you notify the user of the exact name you type here since he or she must type the exact name to be able to connect to your computer. (Uppercase and lowercase letters are interchangeable.)

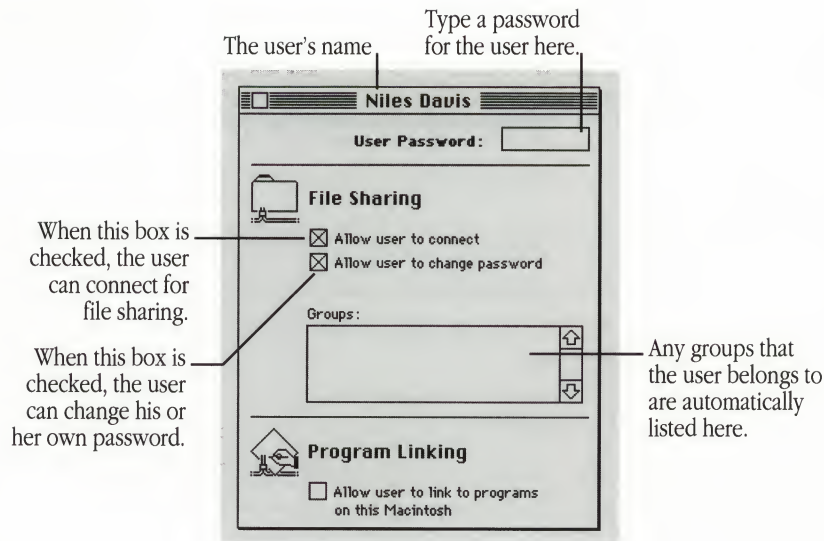


The user is now named on your computer allowing that person to share your folders or disks.

4. **To give the user a password or view other user preferences, open the user icon.**

If you don't want to assign a password, you are done naming the user on your computer. To name more users, repeat steps 2 and 3 of this section.

To give the user a password, continue with this step. When you open the user icon, the following window appears:



5. To assign a password, type a password in the User Password text box.

When you finish typing the password and press Tab, each character of the password is replaced by a bullet to help keep that password private.

The password can be up to eight characters in length. The user must type the password exactly as you type it here, including uppercase and lowercase letters.

6. Check the remaining checkboxes as desired.

When the checkbox labeled "Allow user to connect" is checked, the user can connect to your computer from his or her computer. When the checkbox labeled "Allow user to change password" is checked, the user can change his or her password from his or her own computer.

The checkbox labeled "Allow user to link to programs on this Macintosh" is described in Chapter 6.

7. Close the window. Then click Save in the dialog box that appears to save your changes.

The user information is saved and takes effect immediately.

8. To name more users, repeat steps 2 through 7 of this section.
9. When you're done, close the Users & Groups control panel.

To share folders or disks with the users you have now named, go on to the section titled "Sharing a Folder or Disk With Specific People." To name a group of users, continue with the next section, "Naming a Group of Users."

► See also: • "Recommendations for File Sharing" in Appendix A

Naming a group of users

If your office or work environment consists of groups of people, such as project teams, who work together and need to share similar information, you can simplify your work by naming a group of users on your computer and later sharing a folder or disk with that group.

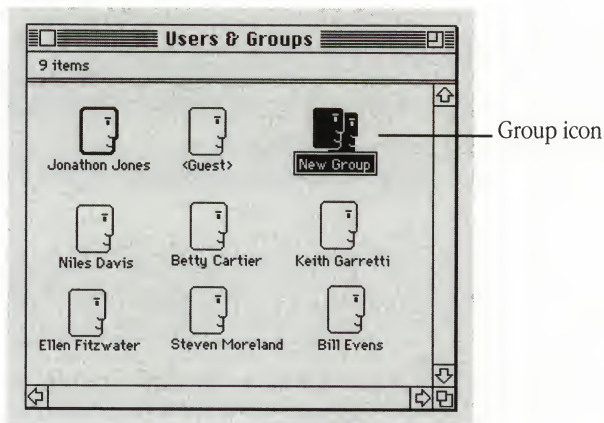
Once you name a group, it is considered a *registered group*.



Users & Groups

1. Choose Control Panels from the Apple menu and open the Users & Groups control panel.
2. Choose New Group from the File menu.

The New Group command is present only when the Users & Groups control panel is active. After you choose the command, a new icon labeled New Group appears.



3. Replace the name New Group with a name for the group.
4. Drag the user icon of each person that you want to be a member of the group to the new group icon.

Alternatively, you can drag the group icon to the user icon for the same result.

It's not necessary to include your Macintosh owner icon in groups because your Macintosh always lets you access the entire contents of your computer, unless you specify otherwise. Also, you don't need to include the <Guest> icon in any group.

- ❖ *Shortcut:* To speed up the process of adding users to groups, Shift-click the user icons and then drag them all to the group icon. ❖

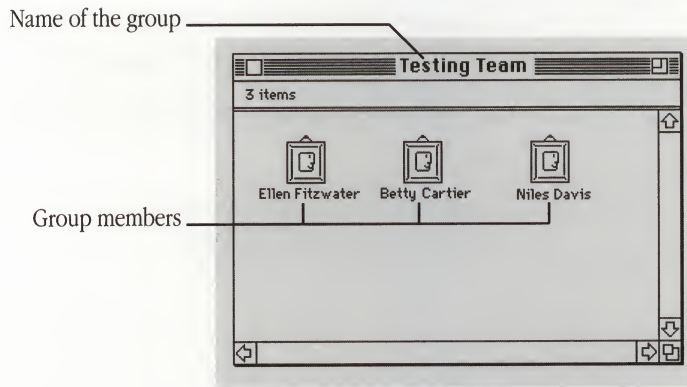
Reviewing group membership

To review what users belong to a group or to review what groups a user belongs to, do the following:

- To see the names of all of the members of the group, open the **group icon**.

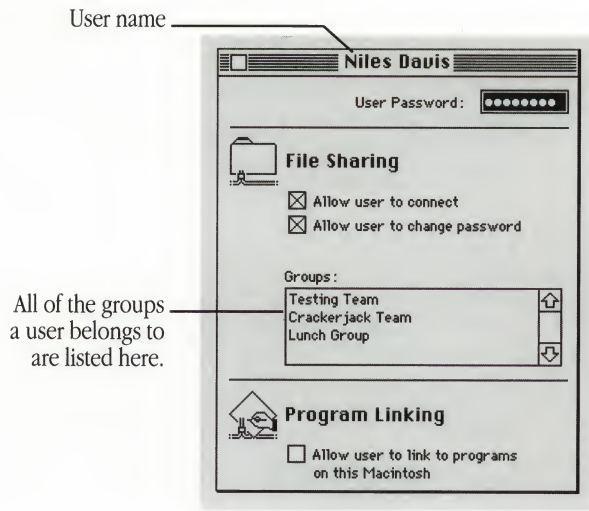
A window opens and shows a *member* icon for every user that you added to the group. If you want to see or change information in a user icon, you can open either the user icon itself, or its member icon in any of the groups in which it is a member.

If you use the By Icon or By Small Icon view, the contents of a registered group will look similar to the following:



- To see the names of all of the groups that a user belongs to, open the **member icon** or **user icon**.

You can double-click either the member icon that appears in the group window or the original user icon that appears in the Users & Groups control panel. In both cases, a window opens and displays a Groups list that names the groups that the user belongs to.



To share folders or disks with the groups you have now named, go on to the next section, “Sharing a Folder or Disk With Specific People.”

Sharing a folder or disk with specific people

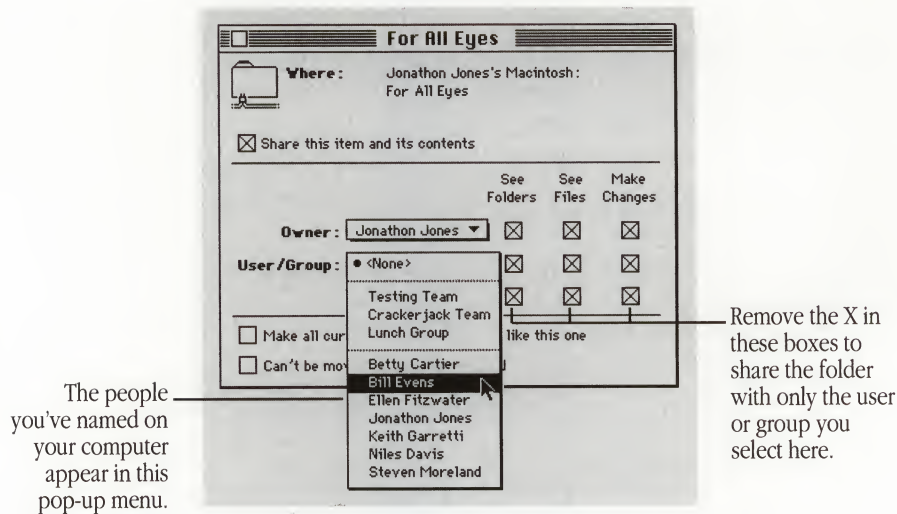
If you named the users and groups with whom you want to share information as described in the previous section, you can now share folders and disks with those people. Follow these steps to do so:

1. Make sure file sharing is turned on.
2. Select a folder, hard disk, or CD-ROM disc to share.
3. Choose Sharing from the File menu.

A window appears.

4. Check the box labeled “Share this item and its contents,” if it is not already checked.

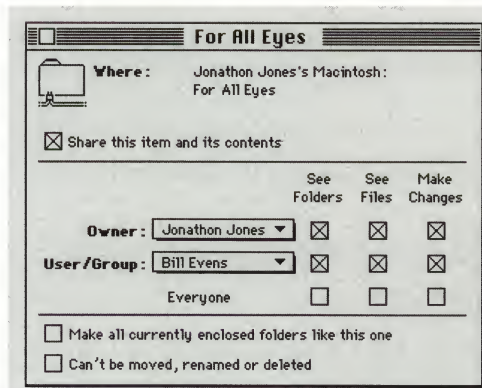
5. Select a user or a group from the User/Group pop-up menu.



The User/Group pop-up menu contains the names of all of the users and groups that you registered. You can choose only one of the items in the list. If you make a mistake, simply change the selection. The name you choose is displayed when you are done.

6. To share this folder or disk with only the user or group that you've chosen, click the bottom row of three checkboxes to remove the X from each box.

This action removes access privileges to anyone else on your network aside from you and the user or group you chose in step 5. For more information about access privileges and strategies to use them, see Chapter 5.



7. Close the window. Then click Save in the dialog box that appears to save your changes.

The folder or disk can now be accessed by the people you chose in the window.

Setting up your computer to access it remotely

To access your computer from another computer on the network, prepare it in the following way:

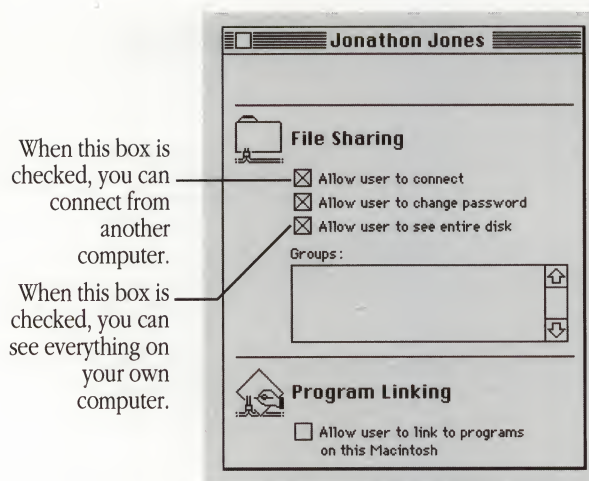
- Leave your computer turned on.
- Make sure that file sharing is turned on.

Then do the following:

1. Choose Control Panels from the Apple menu and open the Users & Groups control panel.
2. Open the Owner icon—the one with the bold outline.



The name of the Owner icon comes from the name entered in the Sharing Setup control panel. The Owner icon opens.



3. Check the boxes labeled “Allow user to connect” and “Allow user to see entire disk,” if they are not already checked.

When these boxes are checked, you’ll be able to see and use everything on your hard disks or CD-ROM discs from another computer. You can access everything on your disks, regardless of which folders or disks are shared or what privileges have been assigned to them.

❖ *Password protection:* The owner password that is entered in the Sharing Setup control panel is what helps to ensure that only you—the owner of this Macintosh—can gain entry to the entire contents of the disks on your computer. When you connect to your computer from another computer, you use that password to identify yourself. Be sure that you keep your password private to prevent anyone else from gaining such access to your computer. ❖

4. Close the window and the Users & Groups control panel.

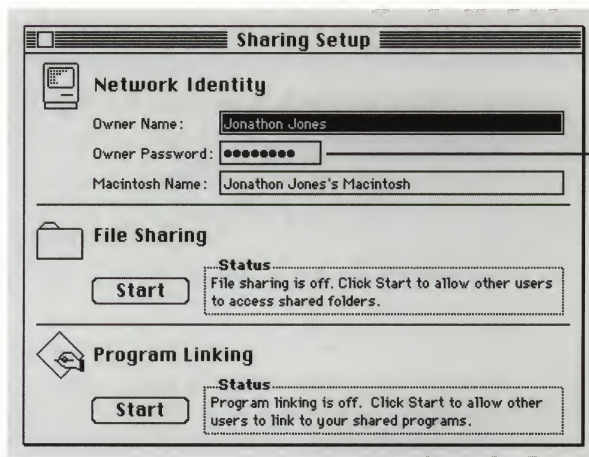
You can now connect to this computer from another computer on the network.

You can now access the information on your computer from another computer on the network.

Changing your password

You use a password to be able to connect to your own computer from another computer on the network. To change your password, follow these steps:

1. Choose Control Panels from the Apple menu and open the Sharing Setup control panel.



Type a new password here.

2. Type a new password in the Owner Password text box.

The password is case-sensitive.

3. Press Tab.

Each character of your password is replaced by a bullet to help keep it private.

4. Close the Sharing Setup control panel.

Your new password is now in effect.

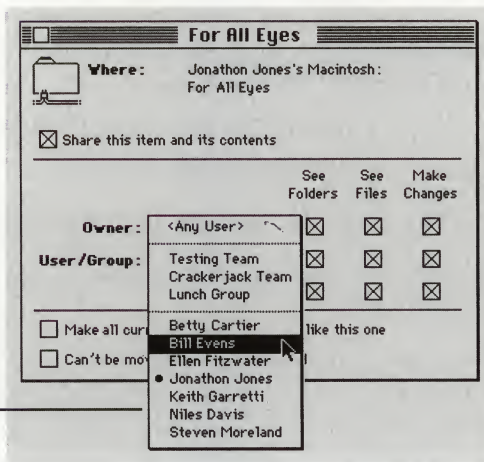
Giving away ownership of a folder or disk

You can give away ownership of a shared folder or disk on your Macintosh to another registered user, a registered group, or even allow general ownership by anyone on the network. Ownership gives a person the ability to change access privileges to a shared folder or disk, so if you name another person as the owner of a shared folder or disk on your computer, you share this ability with that person. (As the computer owner, you can always open and use everything on your own computer and you can change ownership of the folder or disk again at any time.) If you give away ownership of a folder or disk, make sure that you move any important folders or documents out of it first so that you can maintain complete control of the privacy of those documents.

1. Select a shared folder or disk.
2. Choose Sharing from the File menu.
3. Select the name of a registered user, group, or <Any User> in the Owner pop-up menu.

If you select <Any User>, then anyone on the network can change the access privileges of the folder or disk or rename the owner.

Choose a name from this pop-up menu to change ownership of this folder.



4. Close the window. Then click Save in the dialog box that appears to save your changes.
5. Click OK in the next dialog box that appears to confirm that you want to change ownership.

Changing a user's password



Users & Groups

To reduce the chances of a person on the network connecting to your computer with someone else's name and password, you can change the passwords of the users you've named on your computer. Follow these steps to do so:

1. Choose Control Panels from the Apple menu and open the Users & Groups control panel.
2. Open the user icon of the user whose password you want to change.

A window opens with the password—hidden by bullets—already selected.

3. Type a new password to replace the bulleted password.

The password can be up to eight characters in length. The user must type the password exactly as you type it here, including uppercase and lowercase letters.

4. Close the window. Then click Save in the dialog box that appears to save your changes.

The new password is saved and takes effect immediately. Remember to tell the user the new password.

➤ *See also:* • Appendix A, "Privacy and Data Protection"

Monitoring file sharing activity

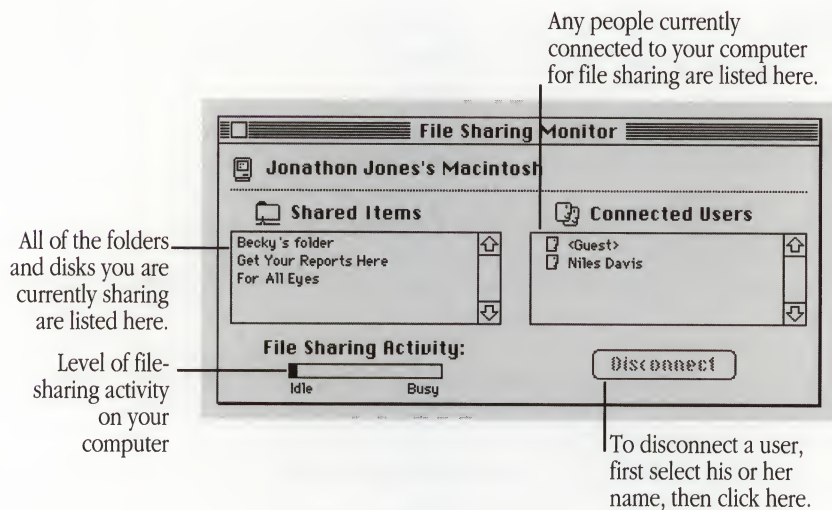


File Sharing Monitor

When file sharing is on, you can review who is connected to your computer and what folders or disks you've shared.

- Choose Control Panels from the Apple menu and open the File Sharing Monitor control panel.

The File Sharing Monitor opens.



A scrolling list of your shared folders and disks appears on the left side of the window. Though only the folders and disks that you shared using the Sharing command are displayed in this list, all of the files and folders contained within them are accessible to network users, unless you have modified their access privileges. Use the scroll bar if necessary to see more of the list.

A scrolling list of all the network users currently connected to your Macintosh appears on the right side of the window.

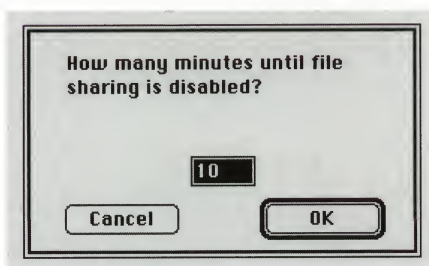
Disconnecting a user You can disconnect users who are currently connected to your Macintosh.

1. **Select the user or users that you want to disconnect from the list of connected users in the File Sharing Monitor.**

To select more than one user, hold down the Shift key while clicking the names of all the users you want to disconnect.

2. **Click Disconnect.**

The Disconnect dialog box appears.



3. **Type the number of minutes that you want to elapse before disconnection occurs.**

To disconnect a user immediately, type the number 0. Otherwise, type in the amount of time to elapse before the user is disconnected. It's a good idea to give people enough time to save any changes they have made to the files.

4. **Click OK.**

The user will be disconnected in the amount of time you requested.

5. **Close the File Sharing Monitor.**

Reducing access to your Macintosh

This section describes the ways you can reduce access to your Macintosh by defining what information can be accessed by which people.

Making a shared folder or disk private again

You can make a shared folder or disk private again after you have shared it. When you do, any files or folders it contains will become private again as well.

1. Select a shared folder or disk.
2. Choose Sharing from the File menu.

The Sharing window appears.

3. Click the box labeled “Share this item and its contents” to remove the X.
4. Close the window. Then click Save in the dialog box that appears to save your changes.

Now no one can access this folder or disk from the network, except yourself. (See the earlier section, “Setting Up Your Computer to Access It Remotely,” for more information.)

Denying access to a specific user

To prevent a registered user from being able to access the shared folders and disks on your computer, follow the steps given here.

If you simply want to disconnect a user who is connected to your computer, see “Disconnecting a User” earlier in this chapter.



Users & Groups

1. Choose Control Panels from the Apple menu and open the Users & Groups control panel.
2. Open the user icon representing the person you want to prevent from accessing your computer.
3. Click the box labeled “Allow user to connect” to remove the X.

4. Close the user window. Then click Save in the dialog box that appears to save your changes.

The user can no longer access your computer from the network as a registered user. If the user is currently connected, he or she will be disconnected immediately.

Denying access to guest users



Your computer is set up to allow guest access when you first start using it. However, you can deny or reinstate this capability at any time. If you deny guest access, you can only share the information in your shared folders and disks with registered users.

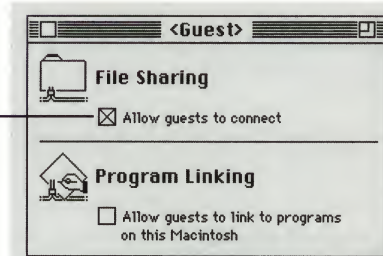
1. Choose Control Panels from the Apple menu and open the Users & Groups control panel.

The Users & Groups control panel displays icons for all the users and groups that you have registered, an icon for you, and a <Guest> icon.

2. Double-click the <Guest> icon.

The <Guest> icon opens.

When this box is checked, guests can connect for file sharing.



3. Click the box labeled "Allow guests to connect" to remove the X.
4. Close the window. Then click Save in the dialog box that appears to save your changes.

When you are done, guest users cannot access any shared folders or disks.

Denying access to yourself



Users & Groups

To prevent yourself from being able to access anything on your own computer from another computer, follow these steps:

1. Choose Control Panels from the Apple menu and open the Users & Groups control panel.
2. Open the owner icon—the one with the bold outline.
3. Click the box labeled “Allow user to connect” to remove the X.
4. Close the window. Then click Save in the dialog box that appears to save your changes.

Removing a user's membership in a group

To revoke a user's membership in a group, follow these steps:

1. In the Users & Groups control panel, open the group icon that the user belongs to.
2. Drag the member icon for that user to the Trash.
3. Select Empty Trash from the Special menu.

The user is no longer a member of that group.

Removing a user or group altogether

You can remove a registered user or group at any time. When you remove a user, all of the memberships to groups for that person will be removed automatically.

1. In the Users & Groups control panel, drag the user or group icon to the Trash.
2. Select Empty Trash from the Special menu.

You cannot throw away the <Guest> icon or the owner icon. To prevent guest access, see the section “Denying Access to Guest Users” earlier in this chapter.

Turning off file sharing You can turn off the file-sharing capability of your Macintosh at any time. Once you do so, network users cannot access any folders or disks on your computer and you cannot access your computer from another computer on the network.

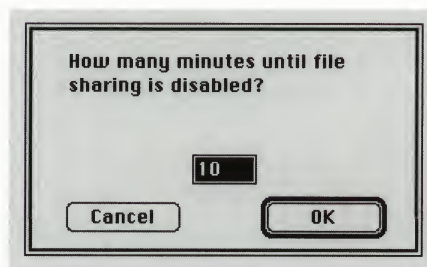
If you subsequently turn file sharing back on, all of the folders or disks that you shared before you turned off file sharing will again be available to people on the network.



Sharing Setup

1. Choose Control Panels from the Apple menu and open the Sharing Setup control panel.
2. Click the Stop button in the File Sharing section of the window.

After you click it, the button is labeled Start. If users are currently connected to your computer, a dialog box appears in which you can specify a delay before file sharing is turned off. This gives current users some time to save their work and to disconnect from your computer themselves.



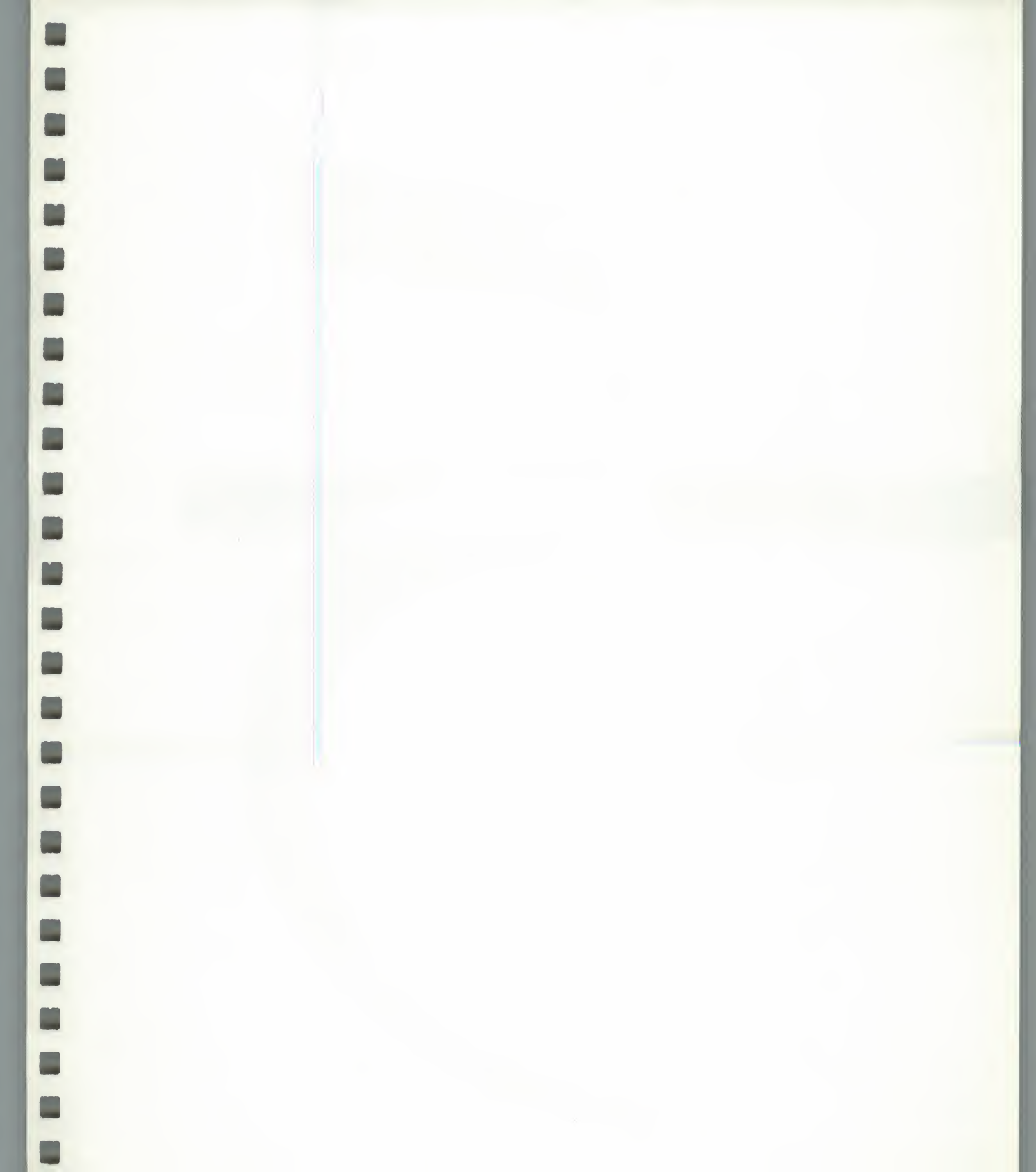
3. Type the number of minutes you want to elapse before file sharing is turned off.

It's a good idea to give people a few minutes to save their files before you turn off file sharing.

4. Click OK.

After the designated period of time, the file-sharing capability will be turned off. If network users are currently accessing your Macintosh and you specified a delay before file sharing is turned off, they will receive warning messages so that they can save their documents. If someone is using files on your Macintosh when file sharing is turned off, any changes he or she has made and has not saved will be lost.

- ❖ *Shortcut:* If you think that you will turn file sharing on and off frequently, move the Sharing Setup control panel (or an alias of it) into the Apple Menu Items folder in the System Folder to give yourself quick access to it. ❖





Access Privileges

As more and more people share information over a network, it is practical for network users to be able to control what other people can do with that information. For example, if you put some official forms in a public area, you might want to ensure that other people don't modify the forms themselves, only that they make a copy of it for their own use. In effect, you'd want to allow people to see those files, and perhaps open them and print them, but you'd want to prevent them from making changes to the files.

As a second example, you might have some confidential documents that only the people in your department are allowed to read. You'd want to take steps to ensure that only your department can see and make changes to those documents.

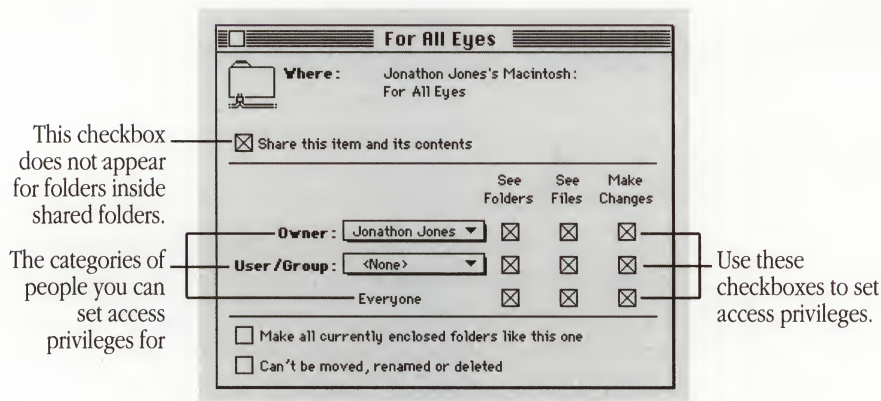
This chapter describes how to use and work with the *access privileges*—the abilities to see files and folders and make changes to them—that are associated with shared information on the network.

Access privileges at a glance

You can review and set privileges to shared folders and disks—whether they are on your own computer or another computer—when you own them. To do so, use the Sharing command as follows:

1. Select the folder or disk.
2. Choose Sharing from the File menu.

The Sharing window appears.



This window will vary slightly depending on whether you are sharing a folder or disk on your own or on another computer. These differences are as follows:

- When the folder or disk is on your own computer, you can select an owner and a user of the folder by using pop-up menus. On other computers, you must type in the names of the registered user or group.
- When the folder is on another computer, the name you used to connect with and your access privileges are displayed in the top third of the window.

Setting access privileges

When you first share a folder or disk, anyone on the network can open, use, and even make changes to the files and folders inside of it. But if you want to control access to the shared item, you can modify its access privileges.

Determining who you share with

The first step to assigning access privileges is to determine who can access the folder. The Sharing window gives you three categories of users who can be given access privileges: the Owner of the folder, a User/Group, and Everyone. These are described as follows.

- *Owner.* The owner of a folder is the only person (or group) who can change the access privileges of the folder and in that way determine who else can access it. You become the owner of a folder automatically when you first create it. You can keep ownership, or give it to a registered user or registered group on the computer. You can even give ownership to <Any User>, which allows anyone on the network, including guests, to modify the folder's access privileges.
- *User/Group.* This category often refers to the single user or group that can use the folder or disk. The user or group that you select must be named on the computer that the folder is on. (Chapter 4 describes how to name users and groups on your own computer.)
- *Everyone.* This category refers to anyone who connects to the computer as a guest or as a registered user.

The access privileges

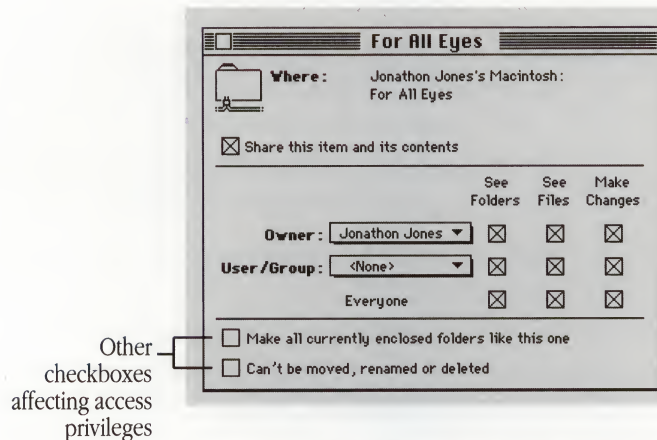
You can allow specific kinds of access to each of these categories of users by granting or denying three types of access privileges to them. Remember that the privileges assigned to a folder affect the files and folders *within* it. The three kinds of access are as follows:

- *See Folders* allows people to see the folders within a folder or disk. If a user does not have the See Folders privilege, the folders within a shared item will not be displayed and the user will not be able to open or copy those folders.

- *See Files* allows people to see the files within a folder or disk. If a user does not have the See Files privilege, files within a shared item will not be displayed and the user will not be able to open or copy those files.
- *Make Changes* allows people to make changes to a folder or disk—copy files or folders to it, delete files or folders, or change any of its contents.

Other checkboxes affecting access privileges

The other checkboxes in the Sharing window provide you with quick ways to affect privileges.



- “Make all currently enclosed folders like this one.” Checking this box will set the access privileges of all folders inside this item to be the same as its own access privileges. This may be useful if you have set privileges to some of these folders and you now want them all to be consistent with the enclosing folder. If you are sharing a folder for the first time, it is not necessary to check this box immediately because every new folder is automatically set to the same privileges as its enclosing folder.

▲ **Warning:** If you use this feature for an item that contains a large number of folders, such as a CD-ROM disc, this action could take a few minutes to complete. ▲

- “Can’t be moved, renamed or deleted.” Checking this box prevents anyone on the network—including yourself—from moving, deleting, or renaming this folder. This is useful to ensure that a folder stays in the place that you leave it.
- “Same as enclosing folder.” This checkbox (not shown here) only appears for folders that are inside shared folders. When the box is checked, the folder always adopts the privileges of the folder enclosing it. When you move a folder that has this box checked to another folder, its access privileges will change to reflect those of its new enclosing folder.

Access privilege strategies

By granting certain access privileges to some people and different access privileges to others, you can effectively control who can do what with the files you share. The following is a list of frequently used configurations that may be useful to you. Of course, you can combine privileges in any way you like.

- **Allow everyone on the network all privileges:**

	See Files	See Folders	Make Changes
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
User /Group	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Everyone	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

This is the default setting when you first share a folder on your own computer. If guest access is allowed on your computer, then you can let anyone on your network see, open, read, or change what’s in the folder or disk. If guest access is not allowed, then only registered users have access to your files.

The following set of privileges also provides the same results since “Everyone” includes registered users:

	See Folders	See Files	Make Changes
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
User/Group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Everyone	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

- Keep a folder or disk on the network private:

	See Folders	See Files	Make Changes
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
User/Group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Everyone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

To allow yourself full access to a folder or disk on the network while preventing anyone else from opening, using, or even seeing its contents, use the configuration of privileges shown above. To accomplish the same effects for a folder on your own computer, do not share the folder.

- Share with one other person or group:

	See Folders	See Files	Make Changes
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
User/Group	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Everyone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

To share a folder with one other person or with one group of people on the network, first select the user or group and then allow all access privileges to that user or group. Finally, remove privileges for Everyone.

- Keep a folder private but allow others to drop files or folders into it:

	See Folders	See Files	Make Changes
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
User /Group	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Everyone	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

You can set up a folder to act as a “drop folder,” which allows network users to deposit files or folders into it but does not allow anyone to see, remove, or change its contents. You can set privileges in this way only for folders within shared folders and disks.

- Post information like a bulletin board:

	See Folders	See Files	Make Changes
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
User /Group	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Everyone	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

You can set up a folder to act like a bulletin board, allowing people to open and read files but preventing them from changing the files.

Access privileges to your own computer

Whether or not you share folders and disks on your computer, you always have complete access to everything on it. Sharing files with others does not affect any of your ability to open, use, or change anything on your computer when you use it locally.

In addition, you can access all of the files and folders on your computer from another Macintosh on the network. See the section “Setting Up Your Computer to Access It Remotely” in Chapter 4.

Working with privileges that others have set

Since other people on the network can assign access privileges to shared folders and disks too, you may be constrained by the privileges they set to the folders you want to access on other computers. This section provides information to help you navigate and work with shared folders and disks that others have set access privileges to.

Recognizing what privileges you have

You must have sufficient privileges in order to work with files and folders in a shared folder or disk. Table 5-1 shows the minimum types of privileges you need for a folder called “Memos” before you can do each of the frequently used operations that are listed.

Table 5-1 Access privileges required for a folder called “Memos”

Action	See Folders	See Files	Make Changes
Copy or move to Memos	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Copy a file from Memos	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Copy a folder from Memos	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Create a folder in Memos	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Delete a file from Memos	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Delete a folder from Memos	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Open and use a file in Memos	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Save changes to a file in Memos	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Understanding icons

Several icons in the Finder can give you information about what privileges you have. These are described below.

Folder icons

When you are using the By Icon or By Small Icon view, the appearance of shared folders changes, indicating the kinds of access you have.



Tabbed folder

A tabbed folder indicates that you are the owner of the folder and you can set its access privileges. Folders on your own computer show this icon when they can be accessed from the network. Folders on other computers show the tabbed icon when you are its owner.



Plain folder

A plain folder indicates that you can open and use the folder. Folders on your own computer that have this icon have not been shared and cannot be accessed by other people on the network. Folders on other computers that have this icon indicate that you do have some privileges to the folder, although you are not its owner.



Not accessible

A folder with a strap around it indicates that you do not have any access privileges to this folder. This icon applies only to folders on other computers since you always have access to the folders on your own computer.



Drop folder

A strapped folder with an arrow indicates that you can put files or folders into this folder although you cannot open it or use any files or folders within it. This is sometimes referred to as a “drop folder.” You will not see this icon on your own computer.

Icons in open folders

When you open a folder on another computer on the network, icons are displayed under the title bar that indicate the privileges that you do *not* have to the folder.



You can't make
changes



You can't see files



You can't see





Linking Programs Over the Network

Some of the programs available for your Macintosh have the ability to exchange information directly with other programs. For example, one program might be able to instruct another program to perform a specific action, such as add a row to a spreadsheet or change the font size of a paragraph. Or, as another example, suppose your word-processing program could link to a dictionary program that could provide definitions and usage of a particular word. This capability to link to programs can add to the power of your individual programs.

This chapter describes how you can link a program on your computer to a program on another Macintosh on the network. This chapter also describes how you can let people on your network link their programs to programs on your computer.

About program linking

Program linking is a way of allowing programs on the same or on different computers to communicate and exchange information, thus providing your programs with even greater capabilities than when they're used alone.

- You can create a link between two programs on your own computer.
- You can create a link between one of your programs and a program on another computer.
- You can allow other people on the network to link their programs to programs on your computer.

You have control over linking programs to your computer

You control exactly when and how the people on your network can link to programs on your computer.

- You don't have to allow program linking at all. Other people on the network cannot link to programs on your computer until you explicitly turn on the program-linking capability yourself. And you can turn it off again at any time.
- No one can link to a program of yours unless the programs have been specially designated by you.
- You can decide who on the network can link to the programs you've made available.

Requirements for linking programs

Programs must allow program linking before you can create links with them or allow others to create links to them. Not all programs have this capability, so check with your software manuals before you try to link those programs.

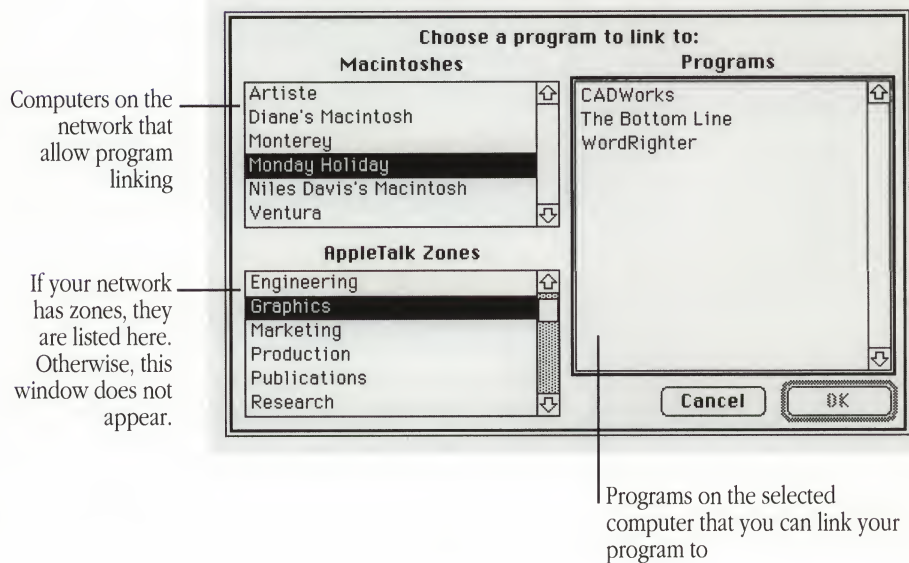
Linking to a program on another computer

The way in which programs implement program linking can vary and the menu location and command title may differ from program to program. Check with the documentation that came with your program for more information about how it uses program linking.

You can link only to programs on the network that have been shared by the owners of the computers on which the programs reside.

1. Within your program, choose the menu item that allows you to link programs.

A dialog box opens, which allows you to find the program on the network that you want to link to.

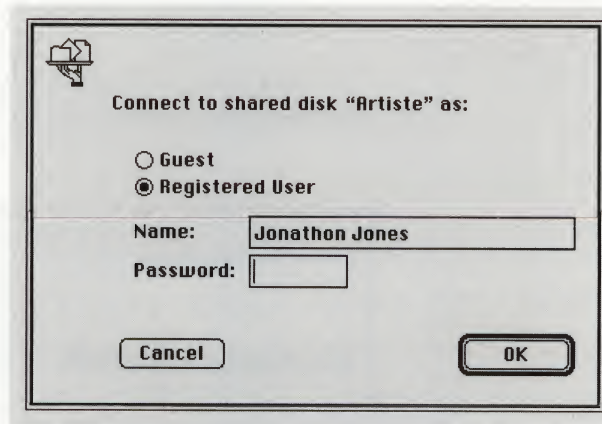


2. If your network has zones, select the zone of the Macintosh you want to connect to in the lower-left corner of the dialog box.

If you do not see a box in the lower-left corner labeled AppleTalk Zones, skip this step.

3. Select the Macintosh you want to connect to in the upper-left section of the dialog box.
4. Select the program you want to link to.
5. Click OK.

In most cases, a dialog box appears, allowing you to identify yourself as a guest or registered user.



6. Click Guest or Registered User.

If you are a guest or if you are not certain that you are registered, click Guest and go on to step 9. If you are a registered user, click Registered User and continue to step 7.

If the Guest option is dimmed, it indicates that guests are not permitted access to this computer.

7. If you are a registered user, make sure that the displayed name is the exact name that is registered. If it is not, correct it.

Type your registered user name with the exact spelling as it is registered. Uppercase and lowercase letters do not have to match.

8. Type your password.

Type your password exactly as it is registered, including uppercase and lowercase letters.

9. Click OK.

The two programs are linked and you can begin to use the features that program linking makes available to those programs.

Disconnecting a program link

To disconnect a program link you have established, quit from the program from which you created the link.

Allowing network users to link to your programs

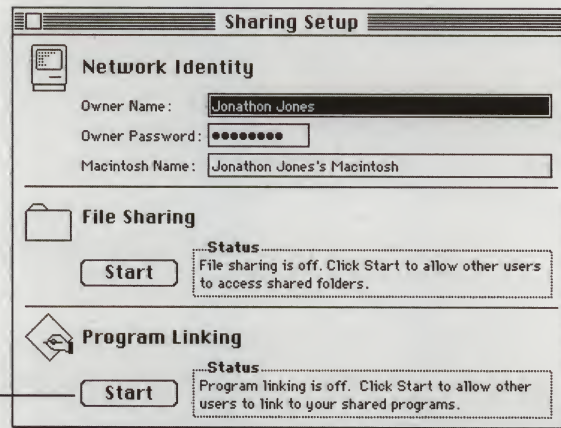
You can allow network users to link their programs to programs on your computer. This section describes how to do this.

Starting program linking

When you start program linking, you let network users connect to your computer for the purpose of linking programs. In effect, your computer is visible to them on the network whenever they attempt to link a program to another program on the network.

1. **Make sure that AppleTalk is active in the Chooser and that you have named your Macintosh on the network as described in Chapter 2.**
2. **Choose Control Panels from the Apple menu and open the Sharing Setup control panel.**

Click here to start
program linking.



3. Click the Start button in the program linking section of the window.

After you click the Start button, program linking starts up and the button label changes to Stop.

4. Close the Sharing Setup control panel.

Once program linking is turned on, you must select (or “share”) the programs before network users can link to them. The next section describes how to do this.

Sharing a program for linking

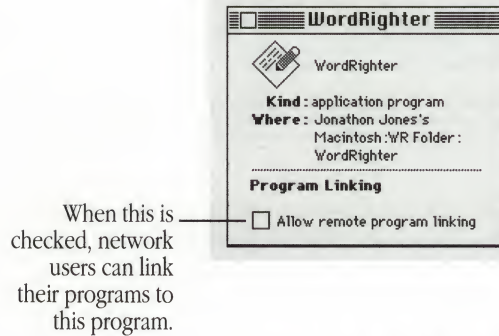
A network user cannot link to your program unless you have specifically shared it first. This section describes how to do this.

1. Select a program on your computer that supports program linking.

Check with your software manual to make sure that the program has this capability.

2. Choose Sharing from the File menu.

The Sharing window appears.



3. Check the box labeled “Allow remote program linking” if it is not already checked.

If the checkbox is dimmed, the program you have selected does not allow program linking, so you cannot share it.

4. Close the window.

After the window closes, programs on other computers can link to your program as long as your computer is turned on, program linking is turned on, and the program is running.

Allowing guest access



Users & Groups

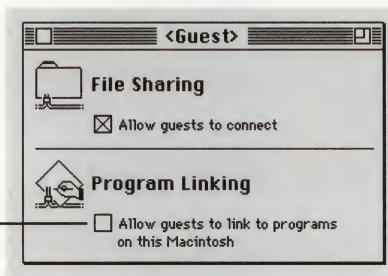
To allow everyone on the network to link programs to your shared programs, you can allow guest access for program linking.

1. Choose Control Panels from the Apple menu and open the Users & Groups control panel.

2. Double-click the <Guest> icon.

The <Guest> icon opens.

When this box is checked, guests can connect for program linking.



3. Check the box labeled “Allow guests to link to programs on this Macintosh” if it is not already checked.

4. Close the window.

Guest users can now link programs to any of the programs on your computer that you have shared.

Naming specific users to link to programs

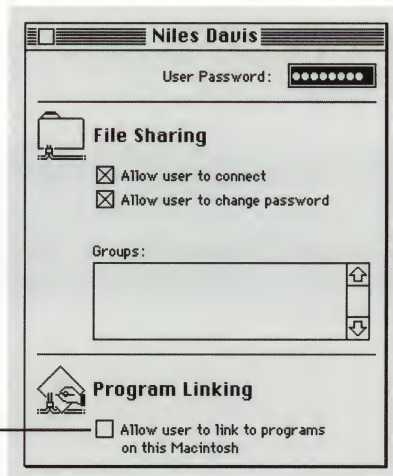
To provide more security for program linking, you can identify the specific people you want to allow to link to your programs. To do this, you name them on your computer. (If you have named users for file sharing, you will be familiar with this process.) You can have as many as 100 users, but for optimal performance, it is recommended that you register no more than 50 users.



Users & Groups

1. Choose Control Panels from the Apple menu and open the Users & Groups control panel.
2. If the user is already registered for file sharing, double-click his or her user icon to open it. If you are naming the user for the first time, choose New User from the File menu and type the name of the user. Then open the icon.

The user icon opens.



When this box is checked, the user can link his or her programs to your programs.

3. Check the box labeled “Allow user to link to programs on this Macintosh” if it is not already checked.
4. Close the window. Then click Save in the dialog box that appears to save your changes.

The user information is saved and takes effect immediately.

5. To name more users, repeat steps 2 through 4 of this section.

➤ *See also:* • “Recommendations for Program Linking” in Appendix A

Removing a user

You can remove a registered user from your computer at any time.

- To remove a registered user or group, drag the user or group icon to the Trash.

You cannot throw away the <Guest> or owner icons.



Troubleshooting

This chapter helps you to address problems you may have while using your Macintosh on a network. If problems occur while you're using an application program, be sure to check for solutions to them in the documentation provided with that program.

General guidelines

Before investigating the cause and solution of any problem you're having with the network, review the following guidelines:

- Make sure that your networking system software has been properly installed. The best way to install networking system software is to use the Installer program on one of your system disks. When you do, you are assured that all of the networking files are placed in their proper location on your system.
- Do not move extension files and preferences files from the Extensions folder or Preferences folder in which they are installed.
- Make sure that your Macintosh is properly connected to the network by securing all cables and expansion cards.
- Turn on and use Balloon Help™ to determine why menu items or commands are dimmed or inactive.
- For problems finding, opening, or saving changes to files and folders on shared disks, it may be that you do not have sufficient access privileges. Review Chapter 5 for more information.
- For problems that are not covered in this chapter, seek out the help of your network administrator.

Using the Chooser

Some possible problems that may occur when using the Chooser are listed here along with their recommended solutions:

Nothing appears in the upper-left section of the Chooser

- Check that AppleTalk is active in the Chooser.
- Make sure that your cables are fitted snugly to your computer.
- If the AppleShare icon does not appear, make sure that the AppleShare file is in the Extensions folder.

A computer, printer, or other device is not listed in the upper-right section of the Chooser

- Make sure that you have selected the type of device you want in the upper-left section of the Chooser.
- If your network has zones, make sure that the zone containing the device you want is selected in the AppleTalk zones list in the Chooser.
- If you are trying to connect to a computer with file sharing available, that computer may have been turned off, or file sharing may have been turned off. Check with the owner of the computer.

You don't know where to enter your User Name

- System software versions prior to version 7.0 allowed you to enter your user name in the Chooser. However, in versions 7.0 and later, your user name is entered in the Sharing Setup control panel.

You can't connect as a guest

- If the Guest selection is dimmed when you try to connect to another computer, it means that guests are not allowed to connect to that computer.

Your user name or password is not accepted

- If either your registered user name or password are not accepted, check with the Macintosh owner or network administrator to make sure that you are registered and that you have the right name and password.
- Check for correct spelling. Your password has to match the way it was registered on the computer you're connecting to, including uppercase and lowercase letters. Check that your Caps Lock key has not been depressed inadvertently.

A shared item doesn't appear in the shared items list or it is dimmed

- If an item in the shared items list is dimmed or does not appear at all and you have correctly connected to the computer it's on, the item is not shared or you do not have sufficient access privileges to open it.

You can't find a file or folder on a shared disk

- If a file or folder on a shared disk does not appear, you may not have sufficient access privileges to see it. Check the small icons in the upper-left corner of the open window to determine if that is the case.

Using the Users & Groups control panel

A problem that may occur when using the Users & Groups control panel is listed here along with its recommended solution:

No owner icon appears

- If only the Guest icon appears in the Users & Groups control panel, you have not entered a user name in the Sharing Setup control panel. See Chapter 2.

Using the Network control panel

Problems that may occur when using the Network control panel are listed here along with their recommended solutions:

You can't find the Network control panel

- The Network control panel will be installed on your system only if you have an EtherTalk or TokenTalk expansion card installed in your computer. If you do have an expansion card installed and the control panel does not appear, use the Custom Install option of the Installer program and install the EtherTalk or TokenTalk software.

The EtherTalk or TokenTalk icons do not appear when you open the control panel

- These icons will be installed for you only if you have an EtherTalk or TokenTalk expansion card in your computer. If you install an expansion card after installing system software, use the Custom Install option of the Installer program to install the specific software.

Using the Sharing Setup control panel

If any of the following conditions occur, file sharing has not been properly installed.

- You can't find the Sharing Setup control panel.
- The Sharing Setup icon won't open.
- The file-sharing section of the control panel doesn't appear.

If any of these occur, make sure that the File Sharing Extension file and the Network Extension file are in the Extensions folder and that the Sharing Setup control panel is in the Control Panels folder of your System Folder. Then restart your computer.

Using the Sharing command

Some problems that may occur when using the Sharing command are listed below along with their recommended solutions. For information about setting the checkboxes in the Sharing window, see Chapter 5.

The Sharing command is dimmed

- The Sharing command is dimmed when you have not selected a folder, disk, or program to share.

The checkbox labeled "Share this item and its contents" does not appear in the Sharing window

- This checkbox will not appear for folders that are within a folder or disk that you have already shared. Folders within a shared folder or disk are considered shared, too.

The checkbox labeled "Allow remote program linking" is dimmed

- This checkbox appears in the Sharing dialog window when you have selected a program. The checkbox will be dimmed if the program you selected does not support program linking.





Privacy and Data Protection

No matter how you use your computer on the network, you should be aware of the ways that you can minimize unauthorized access to your private and confidential information and ways that you can keep your files intact as you work on the network.

This chapter provides information about protecting your files and keeping your data secure whether you access other computers on the network, share folders on your own computer, or link to programs on other computers.

Recommendations for file sharing

If you're using file sharing on your Macintosh, follow these recommendations to keep your files secure:

- Don't put your confidential documents into shared folders or disks.
- Set access privileges appropriately. Use the privileges to determine whether network users can open, read, or change the files in shared folders and disks. For example, if you allow guest access, don't grant any privileges to "Everyone" for a folder that contains information that only a few people should see.
- If you don't know everyone on your network, name the specific users of your computer so that only they can access your shared folders.
- Choose effective passwords for yourself and your registered users. Weak passwords include first names, last names, nicknames, or other identifying words because they are easily guessed. For maximum protection, use passwords that are eight characters in length or mix letters with numbers and special characters.
- If you allow registered users to change their passwords, ask users to change their passwords every few weeks to minimize the chances of someone gaining unauthorized access to your files.
- For greater control over the use of passwords, don't allow your registered users to change their own passwords (in the user icons in the Users & Groups control panel). Instead, make those changes for them on a regular basis.
- If you forget your password to your own computer, go back and enter a new one.

Recommendations for accessing and storing files on other computers

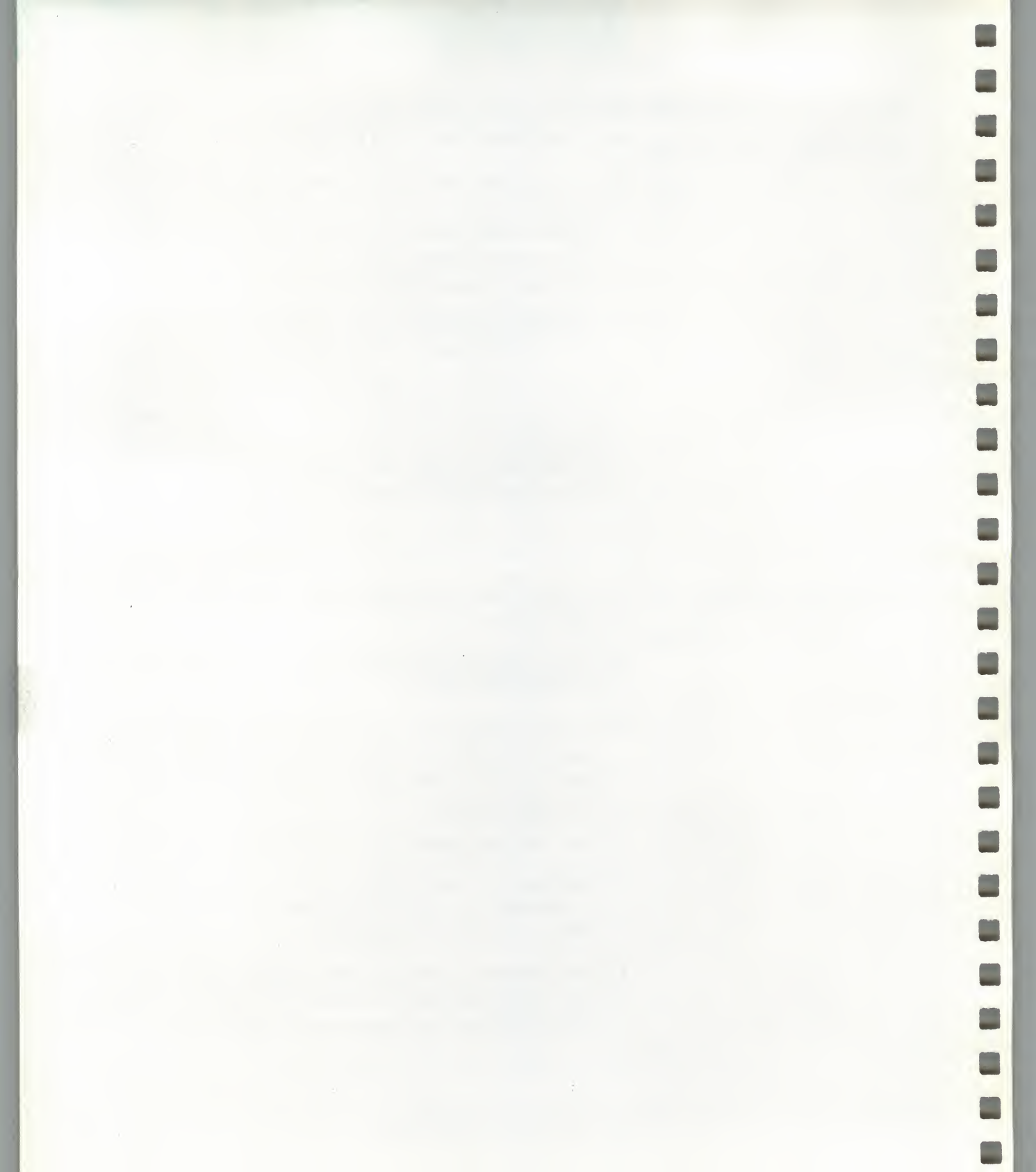
If you access files on other computers on the network, follow these recommendations to keep your files secure:

- If you're a registered user of a file server or another Macintosh that you connect to automatically when you start up your computer, don't have your password entered automatically. This way, a person walking by your computer cannot gain unauthorized access to that computer.
- Don't put your confidential documents into shared folders or disks that allow access by all network users.
- Set access privileges appropriately. Use the privileges to determine whether network users can open, read, or change the files in shared folders and disks. For example, don't grant any privileges to "Everyone" for a folder that contains information that only a few people should see.

Recommendations for program linking

If you use program linking, follow these recommendations to keep your files secure:

- Allow program linking on your computer only when you know that there is a need for it.
- If you are allowing program linking on your computer for a particular purpose, try to determine from the person who you expect to create the link all of the ways in which that link might affect your own files.
- Share only the programs you want to let other people link to.
- Allow guests to access your computer for program linking only if you are sure that everyone on your network will use that privilege according to your wishes.
- For more precise control over who can link to your programs, name specific users on your computer and allow them program linking privileges. In addition, don't allow guest access.



Using Communications Products With System 7

Macintosh system software continues to support two important connectivity products: the Communications Toolbox and Data Access Language (DAL). This appendix provides information about how these products are used with System 7.

Using the Communications Toolbox

The Macintosh Communications Toolbox is a part of Macintosh System 7. It provides Macintosh programs, such as terminal emulation packages, with standard access to communications services.

To use the Communications Toolbox with Macintosh System 7, follow these guidelines:

- Do not install the Communications Toolbox on your computer. The Communications Toolbox is now an integrated part of system software, so you should not install it with any installer program provided with a program you use.
- In versions of system software prior to System 7, you placed communications tools into a Communications folder in your System Folder. However, when the Installer program installs System 7, it moves any tools in the Communications folder to the Extensions folder in the System Folder and then deletes the Communications folder. To use additional tools after System 7 has been installed, drag them to the Extensions folder.
- Wherever programs that use the Communications Toolbox referred to the “Communications Folder” in the program itself or in its documentation, substitute the “Extensions folder.”



A communications tool

Using Data Access Language

System 7 includes Apple's Data Access Language (DAL) connectivity product. Data Access Language allows you to connect your Macintosh to VAX™ and IBM mainframe computers to retrieve data from relational databases.

The basic connection methods that are supplied with System 7 are

- asynchronous to a VAX host
- ADSP (AppleTalk Data Stream Protocol) to a VAX host
- ADSP Tool to a VAX host
- MacDFT™ using the Apple Coax/Twinax Card to an IBM host

If you have DAL files on your system when you install Macintosh system software version 7.0, the Installer program automatically renames the file called "hosts.cl1" to "DAL Preferences" and places it in the Preferences folder inside your System Folder. To use programs that search for the "hosts.cl1" file after you have installed System 7, do the following:

1. Make a copy of the DAL Preferences file that is found in the Preferences folder in the System Folder.
2. Rename the duplicate file "hosts.cl1."
3. Move the newly named file to outside of the Preferences folder but inside the System Folder.
4. Use your program as you normally do. However, whenever you make changes to one of these files, you must update the other file.

For information about Data Access Language documentation or additional connectivity methods, contact APDA™ (Apple Programmers and Developers Association) at

APDA
Apple Computer, Inc.
20525 Mariani Avenue M/S 33-G
Cupertino, CA 95014-6299

G

access privileges The ability to see folders, see files, or make changes to a shared disk or folder. Access privileges are granted by the owner of the shared item and are used to determine what other network users can do with the disk or folder and its contents.

AppleShare file server A Macintosh computer running AppleShare File Server software that allows network users to store, retrieve, and share files and application programs on that computer.

AppleTalk network A combination of devices, cables, and software that operate according to the protocols (rules) developed by Apple Computer. A communications environment in which many different kinds of computers, peripherals, and software can work together. Uses LocalTalk, EtherTalk, or TokenTalk connection methods.

driver Software that sends commands to a device such as a printer or expansion card.

drop folder A shared folder with access privileges that don't allow network users to open it but do allow network users to place files or folders into it.

Ethernet A high-speed, widely used network type.

EtherTalk A network connection type (provided by EtherTalk software installed in your Macintosh) that allows you to use AppleTalk network services on an Ethernet network.

Everyone A category of users for whom you can set access privileges to shared folders and disks. The category refers to anyone who connects to a computer as a guest or registered user.

file server A computer with special software that allows many network users to store and retrieve files on the hard disks or other storage devices attached to it.

file sharing The capability of sharing files among computers on a network.

group A convenient way for a person who is sharing files to control access privileges for a number of users at once. You can assign registered users to groups on your Macintosh and then share a folder or disk with that group.

guest A person that connects to another computer on a network without having to give a name or password.

guest access A type of access to a computer that permits any network user to connect to the computer for the purpose of file sharing or program linking. Each Macintosh owner can control whether guest access is allowed on that computer.

LocalTalk A built-in network connection type that allows a Macintosh computer to participate on an AppleTalk network.

Member A registered user who belongs to a group.

network A collection of devices such as computers and printers that are connected together. A network is a tool for communication that allows users to store and retrieve information, share printers, and exchange information.

network administrator A person responsible for setting up, maintaining, or troubleshooting your network.

network service A capability such as file service or print service provided by special software on the network.

network user A person whose computer is connected to a network.

owner The owner of a Macintosh is named in the Sharing Setup control panel. On a network, the owner of a shared folder or disk is named in the Sharing window, identifying the person who can set or change the access privileges assigned to the shared item.

owner name The name of the owner of a shared folder or disk that appears in the Sharing window. The owner can be the Macintosh owner, a registered user, or a registered group. The owner can set or change the access privileges of the shared item.

password A unique word or set of characters that must be entered before a network user can access a computer he or she is registered on.

printer port A connector on the computer's back panel marked by a printer icon. A serial port that you can use to attach a printer to the computer or to connect the computer to a LocalTalk network.

privilege See **access privileges**.

program linking The ability of an application program to exchange information directly with another program over a network. To use program linking, both programs must have the capability.

registered group A group of registered users that is listed on a computer on a network.

registered user A network user whose name and password are listed on a computer on the network. Usually, registered users have greater access privileges to shared folders and disks than do guest users.

shared disk A hard disk, CD-ROM disc, or other medium whose contents can be retrieved over the network. A disk can be shared by a file server or a Macintosh computer that has file sharing turned on.

shared folder A folder that is available to some or all network users over the network.

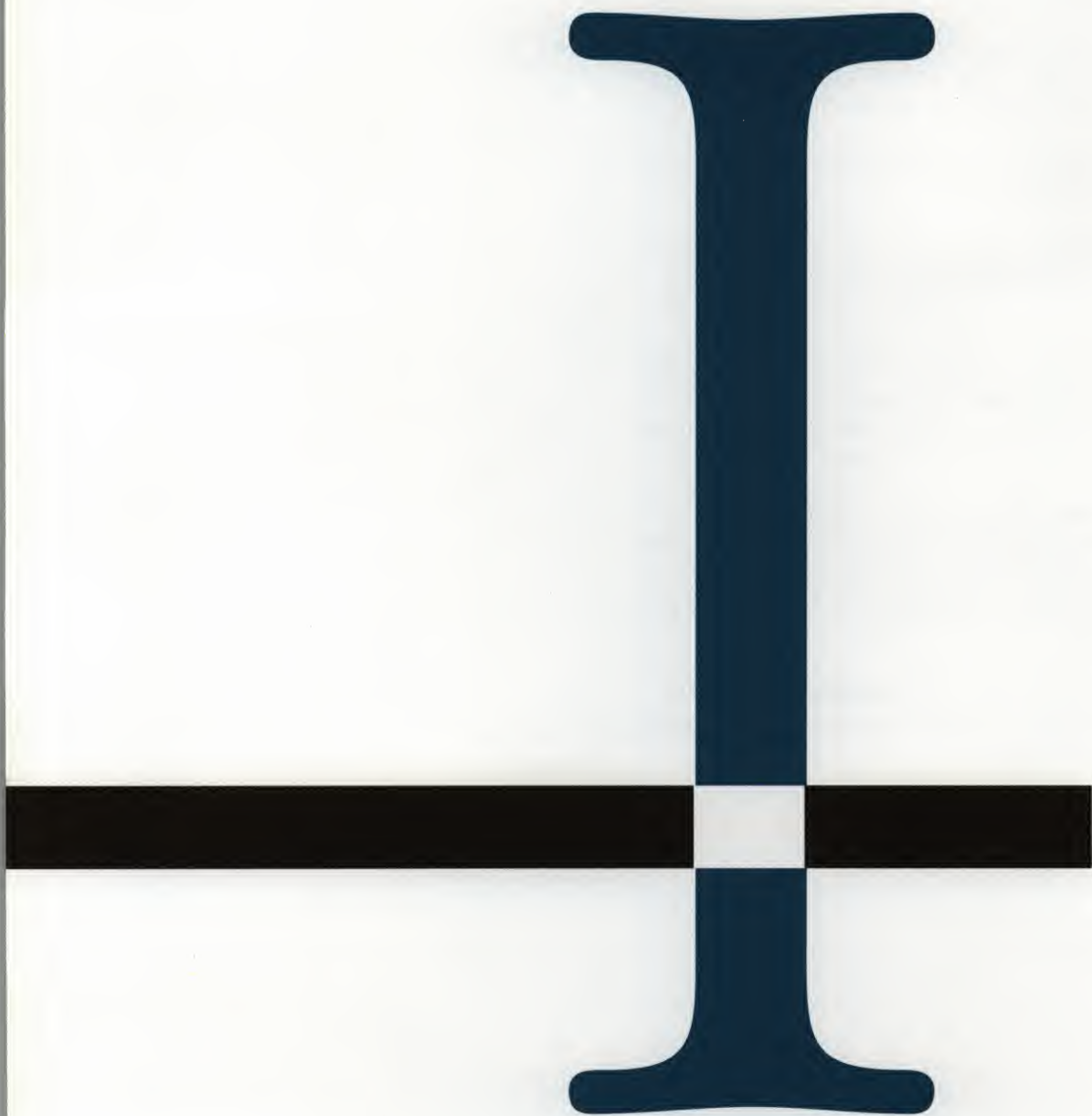
Token Ring A widely used network type originally developed by IBM.

TokenTalk A network connection type that allows you to use AppleTalk services on a Token Ring network.

User/Group A category of users for whom you can set access privileges to shared folders and disks. Can be any user or group that is registered on the computer containing the shared folder or disk.

user name The name chosen by a Macintosh owner or network administrator to identify a user. After this identification is complete, the user is a registered user and can connect to that computer as such.

ZONE Zones are set up by a network administrator and are used to group the devices on the network for easier access.



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